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Cleanings in Bee Culture



VOL. XLI. DEC. 1, 1913, NO. 23.

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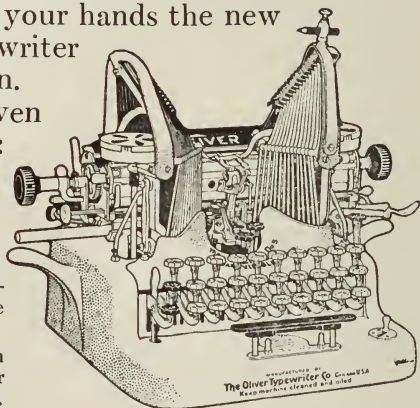
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Gleanings in Bee Culture

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VOL. XLI.

DECEMBER 1, 1913

NO. 23

Editorial

REPORTS of extremely warm weather are coming in from all parts of the country. The danger will be that stores will be used up rapidly in brood-rearing. Beekeepers do well to see that their colonies do not starve before spring.

ON page 20 of the advertising section of this issue will be found a letter from N. E. France that will explain itself. He has distributed something over 35,000 books on "Honey as a Food," and now has exhausted the supply as well as his funds.

E. R. ROOT expects to make a demonstration in the use of modern extracting machinery, including a power extractor, honey-pump, steam knife, and a capping-melter, at Des Moines, Iowa, on the afternoon of Dec. 11. This means, of course, that he will be present at the Des Moines convention Dec. 10, 11, and 12. For full program see Convention Notices on page 20 of our advertising section.

DONAHEY, THE CARTOONIST, A BEEKEEPER.

THE clever cartoonist of the *Cleveland Plain Dealer*, Mr. J. H. Donahey, has been a beekeeper on a small scale for several years. This year he enlarged his apiary somewhat and his interest has increased in proportion. Quite frequently his cartoons show the beekeeper or the bees, and of late he has begun to write an occasional article (signed "Uncle Biff") on the care of bees, or on some topic closely related.

Mr. Donahey is a cartoonist whose work attracts the widest attention, and he has already made his reputation along that line. Who knows but that some day he may also make a reputation for himself as a professional beekeeper? He has a good start.

OUR FRONT COVER PICTURE.

THE front cover of this issue shows the apiary of Mr. Earl M. Nichols, of Lyonsville, Mass. This apiary has the honor of holding the first Langstroth hive that was ever made. Earl M. Nichols himself is sitting in the very spot, as nearly as it can be

located, where Mr. Langstroth put his first movable-frame hive. In this connection (see p. 853) the reader will be interested in some history concerning W. W. Cary and father Langstroth; and perhaps he may derive some pleasure in looking at the old original building where the first Langstroth hive was made.

HONEY DAY IN INDIANA; A SCHEME TO BOOST THE SALE OF HONEY.

IN our last issue, under the head of Convention Notices, in the advertising section, page 18, we inserted an announcement to the effect that Indiana was to observe "honey day" Dec. 15. Mr. G. W. Williams, Redkey, Ind., Secretary of the Indiana State Beekeepers' Association, seems to be the man who is pushing this general scheme. He is prepared to furnish write-ups for the local papers, and, in addition, large display cards 7 x 11, to put up in groceries, calling attention to honey day, and asking everybody to eat a little honey. He has also sent circular letters to the secretaries of the various State beekeepers' associations of the country, urging upon them the introduction of a plan similar to this in their own States. The idea is, of course, to induce a larger consumption of honey, not only in Indiana, but throughout the country. A little effort on the part of beekeepers will do much toward calling attention to the value of honey as a food; and once consumers get a little of the honey habit they will keep it up.

A NEW MOVING-PICTURE FILM ON BEES.

SOME time last summer the Bureau of Entomology sent Dr. E. F. Phillips and a moving-picture photographer to Medina to catch some scenes of bees in action. A number of pictures had been taken at the government apiary, but Dr. Phillips desired some additional scenes which he could get at a large apiary. The two men spent a couple of days at Medina, during which time they secured some very fine pictures of our men and bees in action. There is a fine picture of a swarm clustering on a tree, and the means taken for hiving the same; a view

of a swarm rushing from a hive pellmell; one showing the various manipulations connected with extracting, using an eight-frame power-driven extractor, a capping-melter, and a steam uncapping-knife, and still another showing the handling of live bees. These and numerous other tricks of the trade were taken.

This film has now been released for the public, and is being shown at some of the principal moving-picture theaters in the country. We have been told by those who have seen it that it is an extraordinarily good one.

We suggest that our readers apply to theaters using Universal films, and ask to have this shown. It is a fine film, and will do not a little to educate the public in regard to the kind of work that is carried on in an ordinary beeyard, and, what is more, will advertise honey by showing how it is taken from the bees by modern methods.

THE SAFE ARRIVAL OF THAT CAR OF BEES TO FLORIDA.

THAT carload of 300 colonies of bees that we started on the 14th of November reached its destination at Ranlett's Landing, on the Apalachicola River, Fla., just one week later—namely, the 21st. Every thing worked out exactly as per schedule. This quick trip could not have been accomplished except by careful planning in advance. We personally visited the general freight agents of the principal lines over which the bees were to go. We explained that this was something of an experiment, and that, if it worked out favorably, we could do a greater business of the kind in the future. We told them stories about bees, and left with them samples of honey. It is wonderful what a little honey will do when applied at the right time and in the right way. The railroad people became very much interested, and promised to get that car through on fast freight trains.

The bees were loaded into an ordinary fruit-car with a door at each end and at each side. Unfortunately the weather turned very warm after the blizzard. But the hives were arranged so as to secure plenty of ventilation by opening the front and rear as well as the side doors. In spite of the hot weather for almost the entire journey the bees arrived at destination in good condition. Along with this carload of bees was another carload of bee-supplies—enough to make 600 hives more with frames of foundation. We aim to increase this 600 to 900, but may hardly reach that figure. If conditions are favorable for pollen and nectar we ought to be able to do it. If so, we shall

then load the bees into three cattle-cars and send them back north. So far our program has worked out according to schedule. It remains to be seen now what the future will develop.

THE PURE-FOOD LAW AS IT RELATES TO OHIO.

A SHORT time ago we had occasion to send an inquiry from one of our customers to the office of the Dairy and Food Commissioner of Ohio. The nature of the inquiry will be understood by the reply.

Mr. Root:—We have received your letter of the 10th and the enclosed copy of a letter from one of your subscribers inquiring about the labeling of honey. Complying with your request for a reply concerning the labeling of foods for publication, we are pleased to suggest the following:

Section 5774 of the General Code of Ohio says that no person within this State shall ***** offer for sale, sell, or deliver, or have in his possession with intent to sell or deliver, a drug or article of food or drink which is misbranded within the meaning of this chapter.

Section 5785 defines what shall constitute a misbranding of a food product: 1. If the package fails to bear a statement on the label of the quantity or proportion of morphine and other habit-forming drugs or any derivative of such contained in any food preparation; 2. If it is labeled or branded so as to deceive or mislead the purchaser, or purports to be a foreign product when not so; 3. If in package form, and the contents are stated in terms of weights and measures, if they are not plainly and correctly stamped on the outside of the package; 4. In case of a flavoring extract for which no standard exists, if it is not labeled "artificial" or "imitation," and the formula printed in the manner hereinafter provided for the labeling of "compounds" and "mixtures with their formulæ;" 5. If the package containing it, or a label thereon bears a statement, design, or device regarding it, or an ingredient or substance contained therein, which is false or misleading in any particular. This section then contains an exception clause which says that the section shall not apply to mixtures or compounds recognized as ordinary articles or ingredients of articles of food or drink, if each package is distinctly labeled in words of the English language as mixture, or compound with the names and percentage, in terms of one hundred per cent of each ingredient therein. The section closes with a statement of the size of type to be used in printing the formulæ, and with the statement that such compounds or mixtures must not contain an ingredient that is poisonous or injurious to health.

The sole purpose of the adulterating and misbranding law is to prevent the sale of adulterated and misbranded foods and drugs; in other words, to prevent fraud and deception, and to protect the lives and health of the people.

There is nothing in the law requiring an absolutely pure article of food to be labeled. It is much better, however, for all concerned that all articles, whether containing but a single pure ingredient, or articles known as mixtures or compounds containing several ingredients shall be labeled with the name of the article and the name and the address of the manufacturer or producer. Labels are inexpensive, and the manufacturer or producer shows an evidence of good faith when food products which he offers for sale are so labeled.

All products which contain habit-forming drugs, or which are mixtures or compounds within the meaning of the law, must bear labels stating such facts.

Briefly, then, the law does not distinctly say that articles of food must all be labeled; but the law does say that if articles of food are mixtures or compounds, or contain certain drugs, such articles must be labeled with a true statement of the facts.

Columbus, Ohio, Oct. 13.

S. E. STRODE.

CRACKED-WHEAT MUFFINS AND HONEY; A SOLUTION OF THE PROBLEM OF THE HIGH COST OF LIVING.

LAST summer, on page 514, of our issue for Aug. 15th, we spoke of the pleasure we had in eating a home-made cereal sweetened with honey. This cereal is certainly the cheapest thing of the kind in the world. It will go a long way toward solving the problem of the high cost of living, because it is almost a complete food of itself. It is nothing more nor less than ordinary wheat run through a family hand grinder such as can be obtained at any of the large hardware stores, particularly Montgomery Ward & Co. or Sears, Roebuck & Co., of Chicago. The mill is set so that the wheat is not ground fine; and when ground and cooked for 4 hours over a slow fire it makes a most delicious breakfast food in connection with a little extracted honey. The fact that it is ground coarse makes it all the more valuable to persons of sedentary habits, especially if they find it necessary to use cathartics at times. Referring to the muffins made from this cracked wheat, one of our subscribers along last summer sent the following inquiry, which was overlooked. He writes:

We feel interested in what you say about the above, but we shall have to ask you to make the recipe more intelligible. We have cups here in the South that will hold anywhere from a gill to three quarts. It may be that the people living north of the Ohio River understand what is meant when you say a cupful, but not many of us south of it would readily understand it.

Reidsville, N. C., Aug. 20.

JAS. M. GIBBS.

By a "cupful" we mean a common tea-cup holding half a pint. As some may have mislaid our Aug. 15th number, we are reproducing the recipe here.

Two cups whole-wheat flour; 1 tablespoonful white flour; $\frac{1}{2}$ teaspoonful salt; $\frac{3}{4}$ cup sugar; 2 eggs; 1 cup sour milk or buttermilk; $\frac{3}{4}$ teaspoonful soda; 1 tablespoonful melted butter.

At our house this kind of graham muffins is preferred by nearly all the members of the family to white bread, not alone because they are superior in food value, but because they are toothsome and delightful.

Ordinary wheat is now worth 90 cents per bushel in our locality. With a hand grinder one can grind up his own cereal as he needs it, a little at a time, in order to avoid its becoming wormy; and this is one reason why cereal foods are so high in price generally. They have to be put up in pound

packages, and these, of course, add to the price of their contents. Another large item entering into their cost is the advertising that appears in all the periodicals. This kind of overhead expense alone must necessarily double the cost of the food after it leaves the mill. But this cracked wheat can be had at practically the price of raw wheat per bushel because it carries with it no overhead expense; and it has as much or more food value than any of the cereals sold, at a small part of their cost.

During these winter months granulated extracted honey and cracked-wheat cereal or muffins make a menu that is fit for the gods. If they are prepared right they are more toothsome than any of the modern cereals whose praises are sung in every magazine in the country, and at a mere fraction of the cost.

Beekeepers who have honey for sale would do well to call the attention of their customers to the cheapness of cracked wheat as a cereal, at the same time explaining how well extracted honey goes with it.

THE TORONTO CONVENTION.

WE have just come from attending a very enthusiastic and successful meeting of the Ontario Beekeepers' Association held in Toronto, Nov. 19 to 21 inclusive. When we arrived at the convention hall we were not a little surprised to see so large an attendance. It was estimated that there were 350 present. This is larger than the attendance at conventions that have been held on this side of the line. Indeed, there have been only two meetings in this country, if we are correct, that surpassed it. One was the National, held at the World's Fair, Chicago, and the other the field-day meet at Jenkintown, Pa. But one feature peculiar to the Toronto convention was the fact that there was so large a number of extensive honey-producers who could measure their crops by the carload.

In this connection it is proper to remark that Ontario probably produces a larger amount of honey, and table honey at that, than any State in the American Union, even if we include Texas or California. The soil conditions just north of the lakes are superior to those just south of the lakes. The whole of Ontario seems to be a splendid fruit and bee country; for, so far as we can ascertain, the territory is well developed; or, to put it another way, it is but fair for us to say that more beekeepers probably could not be accommodated in the Province without overstocking, so that there is no use for beekeepers on this side of the line to migrate over into Ontario, as they will find

the country well stocked with bees and beekeepers.

But why so large an attendance? In the first place, the area of good bee country is very compact. The beekeepers would not have to go so far as they do in this country. But this alone would not explain so large a number of persons present. The secret really lay in the active work done by the secretary, Prof. Morley Pettit, Provincial Apiarist, located at the Agricultural College, Guelph, Ontario. For over a year back, he has been working to secure membership for the Association, with the result that he has doubled and trebled it; and now Ontario has something like 1400 members on its roll. We asked him how he secured so large a number. He replied, "By advertising." He kept at work at the local associations to get the members to affiliate with the Provincial organization, and to a large extent they have done this. It was not so surprising, therefore, that delegates from all over the Province were present, making something like 350 on Nov. 20, forenoon and afternoon.

We have always entertained the belief that the clover honey of Ontario was of a very superior quality. The extracted, this year at least, is several shades lighter than the same honey south of the lakes. One reason of this is that the Canada thistle, which is usually present in clover, furnishes a very superior honey. It is very light in color, and when blended with clover makes an article that is to all intents and purposes a water-white, or as near as any honey ever gets.

SNOW AN EXCELLENT PROTECTION FOR OUT-
DOOR-WINTERED COLONIES; IS THERE
DANGER OF ITS BEING TOO MUCH OF
A GOOD THING SOMETIMES?

MEDINA was in the snow-blizzard area of the Northern States that swept the central section of the country on the 9th and 10th of November. Such a blizzard, in this locality at least, was fully two months ahead of time. We were enveloped in snow to an average depth of two feet on the level to eight and twelve in drifts. The result was that our outdoor colonies, which we were expecting on the 10th to load into a car for Florida, were buried in many cases out of sight. It was not particularly cold—about 32 degrees all the time—and the snow was a splendid protection; but it was a little damp when it fell; and when the weather turned a little colder on the 11th the snow began to cake, and then we began to fear trouble. By digging down to some of the colonies we found that some of them were

suffering from want of air, and doubtless many would have died if we had not provided ventilation. Examination showed that the hot breath of the bees had melted the snow for quite a space around the entrance. In some cases the water from the snow froze, filling the entrance up completely, and, of course, the bees became uneasy. But, fortunately, we caught them in time.

Fuller particulars will be given, with a series of photos showing the result of the snow blizzard at Medina; but for the present, at least, it is proper to anticipate a question that may arise in the minds of a good many of our readers, as to whether there is much danger of bees suffocating under the snow. This question we have already answered in part, and it only remains for us to say that a light snow drifted around the hives, so far from being harmful, is beneficial; but when it drifts over the tops of the hives, thaws a little and freezes, there is danger of suffocation. An ordinary light snow, even when drifted over the hives, will do no harm for a few days; but such hives should not be left too long.

It will not be sufficient to run a board or a stick down to the entrance in case the hives are deeply buried, for the simple reason that such a procedure will not disclose the fact that the entrance may be closed with ice. For example, we ran a stick down and made a wide opening at the entrances of several hives, on the 10th. After this was done, Mr. Marchant thought he would investigate. He did so, and found that some of the entrances were clogged with ice. The only thing he could do was to use a shovel, and run his hand down and feel with his fingers in order to ascertain if the entrances were open—a procedure, by the way, not particularly comfortable.

In 1881, at the close of March and opening of April, we had a three-days' blizzard of snow. At that time the hives were buried clear out of sight. Naturally enough we supposed that this snow would be a good thing; but that spring recorded the most fearful mortality among outdoor-wintered bees that was ever known in all modern beekeeping. At all events, our own loss was the greatest we have ever had, and the complaints from all parts of the North showed the same heavy losses. Prior to that time, and even after it, our own winter losses had not exceeded five per cent, and usually did not go above two per cent. We are coming to believe more and more that the bees that year suffered more for want of ventilation on account of the entrances being closed with ice than because of the extreme cold that then prevailed.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

F. A. GRAY sends me a sample of his fall honey which he says is almost all sugar; and as he fed no sugar he wants to know the source of the honey. My guess is that it is a good grade of honey-dew that has candied. I'm forwarding the sample to ye editor. [After examining the sample we should unhesitatingly confirm Dr. Miller's opinion that it was a good grade of honey-dew.—ED.]

D. F. COY is in the sweet-clover region that surrounds Chicago. In 44 days, beginning July 7, his best colony stored 188 sections of sweet-clover honey. A daily average of $4\frac{1}{4}$ sections for 44 days shows sweet clover a good yielder in that case. Mr. Coy depends chiefly on sweet clover for his surplus. It is a long yielder, but the honey has a greenish tinge, and does not present as fine an appearance as white-clover honey.

LOUIS MACEY, p. 771, please don't paint in too dark colors the evils of sending queens by mail. Of the queens I've had by mail, the great majority have done good work and lived the usual span. Nevertheless your suggestions are well worth considering, and in answer to your question I may say that E. R. *has been* sending queens in packages of bees. [Young queens will stand a journey through the mails much better than older ones. Experience shows that old queens or breeding queens, six months or a year old, do not stand the journey as well as a young queen that has just begun to lay. It is right here that baby nuclei have one advantage in that the queens can lay only a few eggs by the time they are packed off in the mails. Yes, sir; as a general rule pound packages of bees contain a queen.—ED.]

M. A. GILL is level-headed in that article, p. 770, but one point will bear comment. He says: "It matters not how slipshod the methods are that produce a can of extracted honey. If it is ripened—" "Ay, there's the rub"—if it is ripened. But that's just the thing most likely not to be, if slipshod methods are used. And right there is the spot where Mr. Slipshod is likely to do twice as much damage to the reputation of honey with extracted as with comb. He may do his worst with comb, and the consumer may be disgusted with the appearance of his product, covered with bee-glue and travel-stain; but the next time he sees a sample of comb honey like Gill's he's just as ready to grab for it as if he'd never seen Slipshod's. Not so if he has had some of Slipshod's unripe extracted. It makes him

suspicious of all honey; and *seeing* a sample of best extracted doesn't remove that suspicion, as in the case of comb honey. Quite right, Bro. Gill; your motto, "Not how much, but how well," is the motto for producers of comb honey, and doubly so for producers of extracted honey.

J. L. BYER says, p. 670, "For 'our locality,' 'bees always strong' is the only safe rule if best results are to be obtained, and I never fret about bees being reared out of season." Same here, friend Byer. I don't believe there's ever a time when I would gain to restrict brood-rearing except for two causes—swarming fever and foul brood. On the other hand, I don't believe there's ever a time when I can profitably do any thing to favor brood-rearing except two things: To keep bees snug and warm, and to see that they have *abundance* of stores.

There may be localities or strains of bees where at times brood-rearing should be discouraged; but I suspect that's the exception and not the rule. There are, no doubt, places or bees where brood-rearing would stop entirely if the beekeeper didn't interfere; but I suspect they are the exception. I don't believe I ever gained by stimulative feeding, and I'm sure I've lost by spreading brood. If my bees rear all the brood they can cover (and they do), what more would you have?

It may be all right to haul bees without fastening in hives, say 19 times out of 20; but after some experience I've had with bees getting out when supposed to be fastened in, you don't hire me to haul them without fastening—not with horse power. [There is one point, perhaps, in this that you have overlooked. A colony of bees that is shut in a hive by means of a wire cloth is often in a state of excitement on account of the confinement and lack of air. The minute that the wire cloth breaks loose *en route*, they may rush out like a lot of mad hornets and sting viciously. If, on the other hand, that same colony had not had its entrance closed up, and were given a little smoke at the entrance before it was closed, it would remain quiet during the entire journey. A few bees will sometimes crawl out of the entrance; but the initial smoking and subsequent jolting will put bees on their good behavior. If short of air they will crawl out of the entrance, where they will seldom do any harm; and if hauled in an automobile truck and they should sting, they will cause no trouble—at least not a tip-over.—ED.]

Beekeeping Among the Rockies

WESLEY FOSTER, Boulder, Col.

Have you ever noticed that exposed honey just off the hives will attract robbers much sooner than honey that has lost the hive warmth? The odor given off is much less pronounced from honey that has cooled off.

CLIMATIC CONDITIONS CAUSE VARIATION IN COLOR OF HONEY.

Mr. P. C. Chadwick says, Oct. 1, p. 671, that every form of nature follows its law—each form on the line on which it was created, and that each one follows only the line given it. In the first place, we mortals don't know definitely the laws governing every form of nature, as there are so many of them. Flowers and plants are undergoing a constant change. No two plants are the same under different conditions. They adapt themselves to environment the same as do people. So it may be safely stated that one of the fundamental laws of nature is change and variation. I think that we have very good evidence here in Colorado to prove that flowers secrete nectar under varying conditions of climate, and have different colors as well as qualities. I do not know what color alfalfa honey has in California; but I do know that we have white alfalfa honey in Colorado in many districts. I think I shall have to set Mr. Chadwick's twenty-five years of observation at naught and state that honey changes with the wind, moon, and soil conditions. The various honeys such as alfalfa, orange, white clover, and basswood, however, *approximate* a certain definite standard. I am satisfied that alfalfa honey will vary from white to light amber in color, and in body from light to heavy. Whether the atmosphere or the food Mr. Chadwick eats has any effect on the color of his blood, I will not say, but it is an accepted fact that climate has an effect on the color of people's skin, hair, eyes, etc. People on the Pacific coast have a different complexion from those in the Rocky Mountain region. "Nothing is permanent but change." [There can be no question but that the color of alfalfa honey (and this is true of other honeys) is dependent somewhat on the locality in which it is produced. The buyers have ample proof of this.—Ed.]

COMB HONEY OR EXTRACTED HONEY.

The beekeepers of the West have had a hard proposition to face in the last few months. The price secured for comb honey, which is the kind largely produced in Colorado, has fallen from ten to fifteen per cent below the price secured last year. Bee supplies have gone up about ten per cent. This

lessening in prices secured for honey, and advance in supplies, is going to bring about important changes in beekeeping throughout the West. It is going to put a damper on beekeeping by those who have depended upon it for a living. This effect will not be apparent at first. Another effect of the lower prices secured for comb honey and the raise in the price of supplies will be the turning to extracted-honey production. Extracted honey will bring the Western beekeepers almost as much as his comb brought this year if he seeks his own market and develops it. Extracted honey can be raised with a much smaller outfit of supplies. There are many Western honey men who confine their efforts entirely to extracted honey, who have practically no outlay for supplies, while the comb-honey men will have to expend several hundred dollars each year for sections and foundation, and as much more for shipping cases. The home market in Colorado (and probably in other States to the south and west) does not consume more than ten per cent of the total production. This should be and will be increased; but it is doubtful whether the home consumption will equal the production for many years. There are too many towns of two or three hundred population where several cars of honey are shipped annually. [An enormous crop of clover honey was produced east of the Mississippi last season. As much of the Western honey finds its market in the East, the severe competition of the Eastern honey this season would necessarily affect prices on the Western. Prices, however, next year should resume their normal, as it is hardly probable that there will be another as heavy a yield of clover honey in 1914, if the law of average holds good.—Ed.]

TREATMENT OF SAC BROOD IN MINNESOTA.

Mr. J. Alf Holmberg, apiary inspector in Minnesota, recommends treating sac brood where there are not too many colonies affected. He reports a yield of 75 lbs. from a diseased colony so treated. It may be that sac brood is more destructive in Minnesota than in Colorado, but I have had scores of colonies affected that produced over a hundred pounds of comb honey each, and they were not treated, the disease disappearing, or practically so, before the season was over. If but a very few colonies are found affected in a locality it might be well to treat all affected ones, if treatment will cure the trouble; but we have so many

colonies affected that we pay no attention to it, and it causes very little trouble except in a very few cases.

Mr. Holmberg mentions carelessness in treating foul brood. Carelessness is so prevalent among beemen in handling foul brood that it is better to burn every thing diseased if but a few colonies are found. Not long ago, in company with one of our county apiary inspectors, I was going the rounds on reinspection work to see how well diseased apiaries were cleaned up. We came upon one alert young fruit-grower who had about twenty colonies, and among them a few cases of disease. He had the government bulletins, and had studied them, especially the one on "Treatment of Bee Diseases," by Dr. Phillips. He had invested in a gasoline-torch for disinfecting, and was following disinfection directions to the letter; but it was right at the close of the honey-flow, and an hour earlier he had been called to dinner, leaving a diseased colony untreated with the hive cover off, which he had forgotten to put on. We came in time to find a nice case of robbing going on while he was out at the honey-house disinfecting hive-bodies with the blue-flame torch! He undoubtedly profited by the experience, and I mention the instance, thinking that it may be helpful to some other earnest young beekeeper.

MUCH PUSHING NECESSARY TO SECURE FOUL-BROOD LEGISLATION AND APPROPRIATIONS.

It is unfortunate that Texas did not secure an appropriation for bee inspection, as the law enacted is such a worthy one for the control of bee diseases. Prof. Wilmon Newell, with his corps of inspectors, was ready to do effective work. It should not be left with the chief inspector to secure legislation for beekeepers. The State and local associations should work hand in hand in this work. The writer, who is deputy bee inspector in Colorado, under C. P. Gillette, State Entomologist of Colorado, had considerable to do with securing Colorado's law for bee inspection with an appropriation to carry on the work; but the real test always has come when the bill is in the hands of the finance committee of the Senate. The experience in securing the last law will illustrate well what work needs to be done. The bill had been drawn up and introduced by Hon. O. C. Skinner, who was speaker of the last House of Representatives. Mr. Skinner was at that time and is yet a beekeeper, owning several hundred colonies. He is an active member of the Montrose Beekeepers' Association. Mr. Skinner introduced the bill in the house, and his colleague, Senator Tobin, of Montrose County, introduced the bill in the Senate.

Mr. Skinner told me, when I took the bill to him to be introduced, that there probably would be some difficulty in getting it passed, as it carried an appropriation of \$2500 annually, but he said that with hard work we could probably get it through.

The beekeepers over the State were urged to write their legislators, and most of them were furnished with the names of their own legislators in case they might not know who their own representatives were. The beekeepers were also urged to write to the Governor. Governor Ammons is a farmer and stockman himself, and is vitally interested in building up the agricultural interests of Colorado. In answering my letter, asking him to do what he could for the bill, he wrote me that he would sign it, and, furthermore, stated that he would do all he could to get it reported out favorably by the finance committee. This I think he did; but the finance committee had decided to let this bill die a natural death in one of their pigeonholes, along with many other bills. About this time Prof. Gillette wrote me that he doubted very much whether we could secure any legislation carrying an appropriation, as the legislature was determined to pass no new bills carrying appropriations.

I went to the telegraph office and sent five or six telegrams to the presidents and secretaries of our local beekeepers' associations over the State, and urged them to send telegrams to their representatives and senators. I know that nearly all of these beekeepers did this. Mr. J. C. Matthews, of Montrose, sent a telegram to Senator Tobin, and also to Mr. Skinner, I believe. Now, Mr. Tobin went to the finance committee and told them that he had come for that bill, and expected that it would be reported out favorably, and he stayed until he got the bill reported. But we didn't get the full \$2500 annual appropriation. It was cut to \$1500 annually. The Governor signed the bill as passed by the legislature, and now the law is in effect.

The beekeepers, if they will all stand together and work hard at the right time, can secure worthy recognition of their industry. The organization of the campaign is the important part. There must be a leader, who should be one of the officers of the State Beekeepers' Association, who will keep the mails hot telling the beekeepers when to write, and offering suggestions as to what arguments to make. [Mr. Foster is exactly right. If Entomologist Newell, of Texas, had had the support of the beekeepers of his State, as did Professor Gillette, of Colorado, there would have been no lack of an appropriation.—ED.]

Notes from Canada

J. L. BYER, Mt. Joy, Ont.

Hard by the garage grew a rose,
Wind-tossed with stem atilt.
One night, unseen,
A chauffeur mean
Some petrol on it spilt.
Adulterated rose nectar
A bee did sip next morn,
And now it does
No longer buzz
But toots just like a horn.

Some friend in Toronto sent me the above clipping pasted to a postal card.

* * *

Moving bees without closing the entrances is all right for the man who understands his business and is either doing the work all alone or is able to get help thoroughly reliable and capable. Without these conditions it is a risky business, and I advise beginners to close all entrances bee-tight with wire cloth. Of course, in hot weather abundant top ventilation will be necessary too, to avoid suffocation.

* * *

As one of the conditions for fast work in extracting honey, it is stated on page 776, "If frames are spaced $1\frac{3}{8}$ from center to center." To my notion that would be a factor to retard rather than help; and if they were spaced more like $1\frac{3}{4}$ than $1\frac{3}{8}$, things would go much faster, especially after combs are in the honey-house. Wide spacing of extracting-combs is an economizer in more than one way, and it is a practice fast coming into use among many producers who were formerly opposed to the plan. Once try it, and I venture to say that not one in a hundred will return to the old plan of close spacing.

* * *

According to your dictum, Mr. Editor, p. 746, Nov. 1, a great many communities ought to be left out in the cold because the majority of places still have not the gump-tion to have roads good all the year round. But we are gradually coming to the point where people see the necessity of good roads, and at present there is more agitation along this line than ever before. Some say that the auto owners are behind these good-road schemes for selfish purposes; and while there may be something in this contention, yet for once, at least, let it be said that selfishness (?) will be good for all classes of the community.

* * *

E. D. Townsend says that "alsike clover is the future dependence of Michigan for its honey supply." In many respects Michigan must be a great deal like Ontario, as the same statement would largely apply to

this Province, comparing one year with another. While there are many localities where white clover yields a good surplus some years, generally speaking "white-clover honey" is a misnomer, as I believe that three-fourths of the clover honey of Ontario is annually gathered from alsike. Certain it is, that, if one hears a beekeeper asking about a prospective location, invariably the question comes up, "How is it for alsike?"

THE CONVENTION IN TORONTO.

These notes are being written just ten days before the date of our annual convention in Toronto, and indications point to a record attendance. The date is a week later than other years, and this means that most beekeepers will be through with the rush of the work for the season. Personally I am looking forward to this annual meeting with a thrill of pleasure. While I always get something of value from the program, yet after all I plead guilty to being actuated more by the social instinct than any thing else; and I just wonder if there are not many others with the same weakness. After all, what would life amount to if only *dollars and cents* were all one had to take pleasure from? Show me a man with just that predominating passion, and you may be sure he is a source of pleasure to no one else—possibly not even to his own selfish nature.

TOBACCO SMOKE FOR BEES.

Arthur C. Miller says that Henry Alley never advised tobacco smoke for introducing queens to full colonies. Never mind whether he did or not; yet many beekeepers have used that plan scores of times, this scribbler among the number. But, thanks to friend Miller, I find, so far as I have experimented with the plan, that ordinary smoke from any thing used commonly as a smoker fuel will answer the same purpose as the tobacco. This saves buying the tobacco and saves me from getting sick, as has already happened when I seemingly got more than the bees did. Come to think of it, quite a few times I have seen bees rolling out from the entrance when smoked with tobacco, so Mr. Miller's plan saves *bees* from getting sick too. I just wonder if it would be wrong to wish that tobacco would make *every thing sick* that uses it. I suppose the matter is none of my business; but I am led to make this query because of a number of good friends of mine who have repeatedly told me that they wished they could quit using the "stuff." You see, if it made them sick *enough* their wish would be fulfilled all right.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

In the issue for Nov. 1, p. 754, Mr. Doolittle recommends the use of open entrances in moving bees. Editor Root also comments on the plan. Mr. L. L. Andrews, of Corona, who has had a wide experience in this line, left the impression with me last spring that he had not found the plan satisfactory. There is one very great objection that I see in a locality where there is liable to be foul brood, or where it is known to be prevalent; that is, the danger of spreading the disease to the four winds. Personally I think the plan should be discouraged, as there is too much risk in this connection.

CLEANLINESS IN EXTRACTED-HONEY PRODUCTION.

Nov. 1, p. 770, Mr. M. A. Gill has an interesting article. Much of it is good, but a part of it I do not feel like letting pass without comment. I have very great respect for the opinion of such a man as friend Gill, for these old timers with years of experience deserve the place they hold in the esteem of the beekeeping public. Yet there are some things in this article which do not sound fair to those who produce extracted honey. I quote the following: "Now, if a campaign is to be started urging the production of more comb honey, let's first start a school urging the placing of a better grade on the market." That part is right; but why stop with comb honey? Such a school is needed in the extracting line just as much as it is needed for a better grade of comb honey. Mr. Gill also says, "It matters not how slipshod the methods are that produce a can of extracted honey. If it is ripened, settled, or properly strained, it is all right for market, and anybody who can turn a grindstone can produce extracted honey whether at a profit or not." Is it not true, also, that those who could turn the same stone can produce comb honey? I think the rule would apply equally in either case. Mr. Gill's comparison is hardly fair to those who take pride in producing a fine grade of the extracted product. A beekeeper who is inclined to be neat and painstaking in his work would in all probability do just as well, so far as producing a fine article is concerned, with comb honey as with extracted. I fail to see why all of the careless and slovenly inclined should be uninstructed and allowed to continue to produce a poor article of extracted honey while those producing comb honey were being instructed in producing comb. A good, clean, well-ripened, neatly packed package of ex-

tracted honey is just as important as is the same in comb. The tendency to be dirty is greater among producers of extracted than comb honey, because the faults do not show so plainly on the face of the business; yet there is all the more reason for care and for the discouragement of unclean ways. Neither can I agree that extracted honey, merely because the ants, larvæ, and dirt are strained out, and the honey is put in second-hand cans and a weather-stained case, is right for market.

I quote the following from an editorial in the November issue of the *American Bee Journal*: "I have just received a letter from Mr. J. F. Diemer, of Liberty, Mo., in which he states that he purchased some honey from a commission house. The honey was put up in 60-lb. cans, which were bright enough on the outside; but from the sample of tin sent us, they were about the worst ever on the inside. Mr. Diemer stated that, besides the rusty cans, there were so many bees, etc., in the honey that it was easy to tell that the producer was one who leaned toward black bees rather than Italians." Further on in the same editorial the editor does not altogether discourage the use of second-hand cans. Here is a sample of not only a dirty mess of honey, but also of one put up in a second-class manner, and yet the practice of using such second-hand methods is not altogether discouraged. To be sure, the honey in question was not properly strained; but even if it had been it could not have been first-class when packed in second-hand receptacles. If I had my way about the matter I would not permit the reuse of any can that had once been on the market; and I firmly believe it would be a good move for producers if they would adopt a can that could not be opened without destroying it for future use. Why dealers should be permitted to salvage these old cans, and turn them back to a class who are not overly particular about either the receptacle used nor the manner in which the product is put up, I can not see; for, as a rule, that is the only class of men who would care to allow their produce to be packed in such a manner. I have never used a second-hand can except when the purchaser had returned one to be filled of his own accord. I am perfectly willing to help Bro. Gill with his school if he will give a class for producers of every kind of honey on the market. But even at that, those who are not inclined to be tidy will fall more or less into the old rut.

Conversations with Doolittle

At Borodino, New York.

UNPAINTED HIVES WITH SHADE-BOARDS.

"I am in a quandary as to whether to paint the hives I am planning to build this winter. I suppose you read what Dr. Miller and Editor Root have to say on this painting matter, pages 400 and 401, June 15."

If Dr. Miller had not "fallen down" so easily he could have found that "weak spot" so as to give the last telling "jab" at the editor; for, unless locality has much to do with the matter, the editor's question, "Is it not true that an unpainted hive assumes a gray-black hue—a color that becomes almost pure black?" has no foundation, at least not in Central New York. Here, unpainted wood, if exposed to the weather, slowly changes to a light gray, or dull whitish tint, through the formation of a slight fuzz all over the exposed surface. In localities where wasps and hornets abound, this fuzz is scraped off with the mandibles of these insects, and used, when mixed with their saliva, to form their nests. I have yet to see a wasp's or hornet's nest of a gray-black or black hue. Now, where does this apply? This light-gray fuzz so "tangles up" the rays of the sun by the air circulating through it that it is almost cool in comparison with a hive which is painted venetian red, and compares very favorably with the hive which is painted white. With the experience of placing my bare hand on the surfaces of hives of different colors, scores of times during the past, I am at a loss to know how any unpainted hive which had been left out in the weather for a period of four or more years could be "almost hot enough to blister the hand." I had scores of combs melted down in hives painted in dark colors when I used to paint my hives, but never a comb in an unpainted hive, nor in one painted white. So if I were to paint hives, white would be the only color I would use.

But after seeing water running out from the entrances of painted hives on cool spring mornings when the bees were evaporating nectar gathered the day before, and after having combs mold to a far greater degree during the winter in all painted hives, while the combs and inside of the hives which were unpainted continued in far better shape, I decided, some twenty-five years ago, never to paint another hive.

As to the economy of painting, I consider it a myth. The editor cites the painting of houses to prove his ground. Last week I was told that a house two miles from here, which was built and the siding put on 87

years ago, had been torn down to give place to a modern house. As this old house had never been painted, I went over to see the siding. I found many of the boards almost as good as when put on. Others were cracked and checked at the ends and in different places, with a few somewhat decayed around the nails which had held them in place, while all were worn from one-third to two-thirds down or through by the storms beating upon them, except the lap, under which most of them were as sound as ever. Why talk about the economy in painting houses? The owner said that old house had not leaked through the siding since he bought the place, twenty years ago. The main reason for painting either houses or hives is the looks. If the looks keep a man interested and contented with his home or his bees when he otherwise would make "shipwreck" of either or both, with such a *one*, painting certainly pays; but where any man or woman can keep up the same interest in bees, and keep them in unpainted hives, my experience proves that more "dollars" will come to such a one than would accrue where the hives are painted.

But whether painted or unpainted, all hives should have shade-boards. These are "miles" ahead of shade from trees or buildings for bees, and for profit from an apiary as well. I am surprised to note that Dr. M. uses painted tin covers, or those having the wood covered with zinc. Either keeps the moisture in nearly as badly as does paint. Leave the wood cover without paint, doctor, and put the zinc over the shade-board. I make a "skeleton" of $\frac{7}{8}$ -inch-square strips, as wide as the cover of the hive, and eight inches longer than the hive is as it stands with the entrance to the south. I raise the back or north end of the skeleton four to six inches from the cover by means of posts or legs. This allows air to pass over the cover, and carries off the rain. To the top of the skeleton I nail $\frac{3}{8}$ or $\frac{1}{2}$ inch lumber one foot longer than the cover of the hive is wide. I cover this with zinc, tin, or two-ply balkan roofing paper. The latter answers all practical purposes, and costs only 75 cents for a roll which will cover 103 square feet. The tin and paper need paint to keep them from deteriorating. The thin lumber can be obtained from boxes in the country store, at a cost of little more than a song. When nailing to the skeleton, allow the foot an extra length to project equally on each side of the hive or cover. If in a windy place a brick or stone will be needed on the

Continued on page 862.

General Correspondence

NOTES, NEGOTIABLE AND OTHERWISE

BY ARTHUR C. MILLER

Put on supers when it suits your convenience, and take them off when the honey is ripe, not before.

The first three lessons for beginners should be, How to Light, How to Load, and How to Use a Smoker. Some veterans will please take notice—and lessons.

I had a little skit on the color blindness in bees. The editor left it lying around loose, and Mr. Lovell picked it up, not knowing that it was loaded. My sympathies are extended to the afflicted.

Some old professors said that action and reaction are equal, and opposite in direction. They may be opposite all right, but not equal. Use your finger to push the bee through a hole and you won't ask me any fool questions.

If you have neglected to feed your bees until now you should use one of the candies. They are safer for cold-weather feeding—a little more trouble to make, but a lot easier to use, and a whole lot better for the bees—in cold weather, mind you, and, again, some other times.

If you really want to improve the bee-keeping conditions around you, to help to eradicate bee diseases, get the beekeepers to subscribe to the bee magazines. If every reader will get just one new reader the uplift in bee culture will be beyond anticipation. And I don't own a red cent's worth of a bee paper at that.

If you do not get what you think your honey is worth, do not blame the buyer, the commission house, nor any one but yourself. Probably you are afraid to ask all it is worth, and a little more, and perhaps you are hard up and need the money. Nothing "bears" the market more than necessity. Poor goods stand next.

Never mind the increase in price of lumber. It is a small matter after all, and you can not afford to go without proper equipment and then make up for it in labor. Your own labor is even more costly than what you hire, and you can easily waste many times the cost of the needed appliances by not having them. P. S.—I do not deal in supplies.

A man quoted to me the old saw that bees won't sting you if you hold your breath, and added that it wouldn't work—told him he didn't hold it long enough. Bees don't sting dead things—not if they are quite

dead, and the color is right. Incidentally, the odor of things thoroughly dead does not cause the bees to assail them. I wonder why. Guess they like that odor.

Lost, strayed, or stolen.—One odor theory. A liberal reward will be paid for its return to E. R. R., Medina, Ohio, and no questions asked. [The odor theory is still on deck. The editor is not ready to abandon it just yet. Any thing that tends to destroy or obliterate colony or queen odor by smoking, for the purpose of introducing, may or may not support the theory. We are waiting for more evidence.—Ed.]

Have you begun your plans for 1915? Yes, I mean that year, for those for 1914 should have been made long ago, and need only a little polishing up. That sounds foolish, like a waste of good space, for the year-ahead planners will do it anyhow, and no power known to man can start the other kind into getting a move on. But there may be some who only forgot, or are taking a nap, so I guess we will let it stand. And, by the way, do not confuse real planning with day dreams. They are quite different.

Funny what different *notions* are held on smokers and the use of them. A good many of the boys use any kind that may be at hand, and a lot of others want something very special. One wants a little vest-pocket affair. Another wants something on the style of a smelting furnace, and about as handy. One will spend much of the daylight hours in stoking, while another seems able to make a pinch of fuel do all day. One will suffocate in a cloud of smoke, and another will forget there is such a thing. And there are some benighted individuals who persist in using a nasty old pipe filled with tobacco. Say, wouldn't it make some show to line up the boys with a collection of the sundry varieties, and set them going?

There is one way to sell your honey which will bring top price, take all you raise, and drive you distracted to meet the growing demand. Produce the rich, ripe, come-again kind. It sells itself as well as rum. And right there lies a tale—a true tale. A certain dealer in bottled liquors ordered a few jars of honey to be used with liquor for coughs and colds. Soon more was wanted; then more and more, and yet more. Each year the volume has increased. Great quantities have gone to people who never use liquor, and now the dealer says that if the trade keeps on growing it will exceed his liquor trade and drive him out of it. The honey has always been of the highest

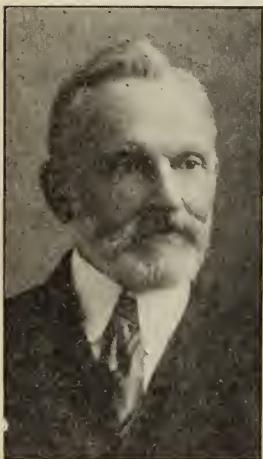
quality, and sells itself. It has become a staple, a necessity, and the producer thinks it a good way and a good place to fight liquor. When a club fails, try sugar plums.

Providence, R. I.

A VISIT WITH R. F. HOLTERMANN IN CANADA.

A Modern Twelve-frame Power Extracting Plant; Troubles with the Honey-pump Overcome; the Steam Uncapping-knife vs. the Cold Knife; Capping-melters vs. Draining-cans.

BY H. H. ROOT



R. F. Holtermann, of Brantford, Ont., Can. Mr. Holtermann is wintering 700 colonies in Ontario, and 150 in Missouri.

Ever since Mr. R. F. Holtermann bought his twelve-frame extractor I have been promising to cross over into Canada in order to see it work and to see several other things work besides; but circumstances prevented my going until July of this year. Early in July Mr. H. wrote that the honey-pump was not working properly, and that I would simply have to come. I learned later that there had been

some speculation among the students working for Mr. Holtermann as to whether I would dare show up, and that Mr. Glen Holtermann, who, by the way, is six feet tall and then some, had said that they would see when the time came that I would make some excuse and stay at home. However, contrary to expectations, Glen, who was waiting at the station with the auto, saw me get off the train at the appointed time. We started at once for the particular yard that was being extracted, several miles away. I had no need to ask Glen whether they had already begun work for the day, for he was decidedly "stuck up," in spite of the fact that he was dressed in bib overalls.

Although the distance from the station to the yard was between five and six miles, we covered it in a very few minutes in the auto. About a year ago Mr. Holtermann decided he could no longer waste his time in going from yard to yard behind a horse,

and so he purchased a five-passenger automobile—an Overland—which has proven a good investment in more ways than one. Frequently the "democrat," loaded with fixtures, is towed behind the machine. Light loads in a single wagon may be pulled easily over good roads, and much better time made, than with a horse. Of course, the average automobile is not adapted for towing heavy loads.

When we reached the yard I went at once to the honey-house, and a busy scene met my eyes. In all, there were six helpers keeping the twelve-frame extractor going, besides those out in the yard. Fig. 1 shows the whole plant, although this particular view was taken at another yard.

Before describing in detail the various parts of the extracting outfit it may be well to mention that Mr. Holtermann drives his twelve-frame extractor with a gasoline-engine, which, to economize space in the room, is located outside the building, the belt running through a hole cut in the wall, Fig. 2. The pump conveys the honey from the bottom of the extractor to one after another of the large tanks seen in the background of Fig. 1, each of which holds about 3400 pounds. The tanks, of which there are about 26 in all, are six feet high and three feet in diameter. Mr. Holtermann does not use a capping-melter, having, instead, two large uncapping-tanks in which the cappings drain. He is using for the first time this season two steam uncapping-knives. Heretofore he has always used cold knives entirely. After being uncapped the combs are placed diagonally, as shown, in a super which stands over a large square pan to catch the drip.

When I arrived I noticed that the belt was not on the pump. It would not stay on, in fact; and the pump, while a thing of beauty, was hardly a "joy forever." Nearly the whole time of one man was taken in drawing off pails of honey from the bottom of the extractor and lifting them up and pouring the honey into those high tanks. I at once saw that two mistakes had been made in following the instructions, and we proceeded to make them right. In the first place, the large pulley was located on the extractor shaft and the small one on the pump. We exchanged pulleys, putting the small one on the extractor-shaft, and the large one on the pump, thus reducing the speed greatly. It depends somewhat on the temperature of the room, and of the honey also, on the height to which the honey must be elevated; but if the pump runs 60 to 100 revolutions per minute it is fast enough for all requirements. Mr. Holtermann's extractor being a twelve-frame, the pump was

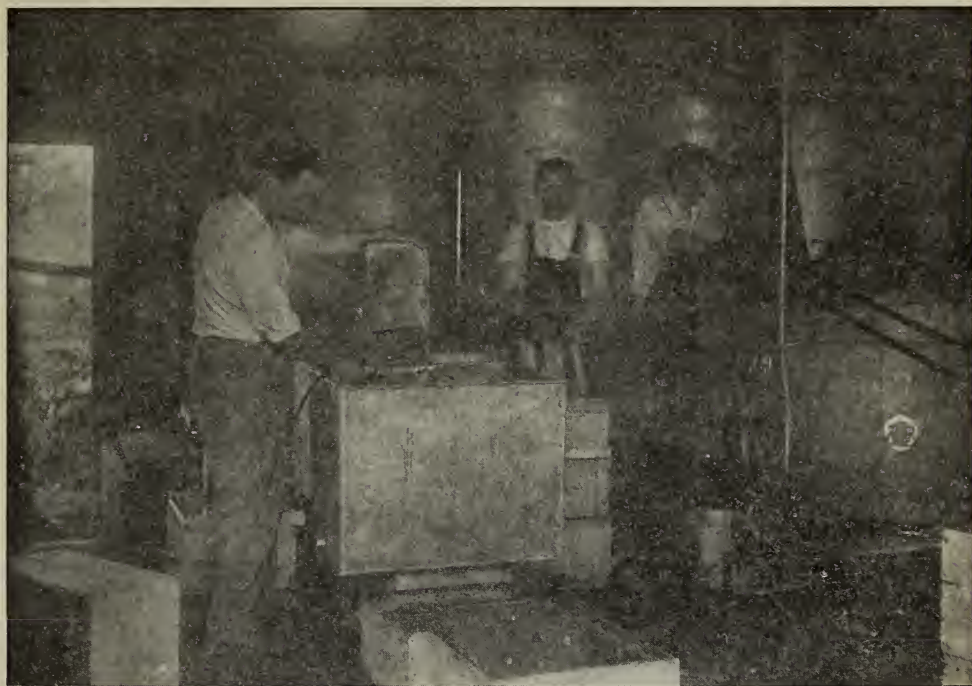


FIG. 1.—Interior of one of R. F. Holtermann's extracting-houses. The young man on the left is Walter Hull, of Connecticut. The next is Warren Munroe, of Ontario. These two were students with Mr. Holtermann this last season. Glen Holtermann is shown at the extractor.

running a trifle over 100 revolutions per minute.

We next took down the $\frac{3}{4}$ -inch pipe which conveyed the honey from the pump to the can, and replaced it with one-inch pipe. When this change was made the pump ran easily with a comparatively loose belt, and kept ahead of the extractor without effort. On one occasion when swinging the horizontal pipe to the next tank we found it was not quite long enough to reach. We threw the pump belt off, therefore, while we were putting on a longer pipe, the extractor being kept running all the while. It took about ten minutes to rig up the longer pipe; and during this time the level of the honey in the extractor-can had risen to a point where it was almost touching the bottom of the reel. In less than fifteen minutes after the belt was put on, the pump had "caught up" and we could see the bottom of the extractor again.

It was with a great deal of interest that I watched the operation of this twelve-frame extractor: for it has been suggested more than once, that, since centrifugal force is greater closer to the center, other conditions being equal, it is possibly a mistake to use extractors that are so large. However, it is perfectly clear in my mind that, since the

velocity of the combs is so very much greater in the larger cans at a given reel speed, this more than offsets the slight disadvantage of having the combs further from the center of the reel. Practical proof of this was not lacking; for this twelve-frame extractor emptied the combs in less time than I thought was possible; that is, it required less time for a set of combs, considering the heavy body of the honey, than any extractor that I have ever had any thing to do with.

In order to keep the extractor moving as much of the time as possible, Mr. Holtermann has two men ready the instant the reel comes to a stop, one to take out the empty combs and the other to put in the full ones to be extracted. I found that the average time required to change the twelve combs was fifteen seconds. Although the honey had just been taken from the hives, so that it was quite warm, it was nevertheless of very good body, and the average time that the combs were whirled was two and a half minutes. This means that in every two minutes and three quarters, or in every three minutes at the most, a twelve-frame super of honey was extracted. Theoretically this would figure, counting five pounds to a comb, something over 1000 pounds per hour. Taking into considera-

tion occasional delays, the average rate while I was there was about 700 pounds an hour.*

Mr. Holtermann himself works in the yard, having two helpers to assist him. Fig. 3 shows the process of removing the honey from the hives. One helper is provided with a smoker, and the other with two brushes. The one with the smoker removes the cover, loosens the frames, and handles the smoker, while Mr. Holtermann shakes the frames one by one, then holds them momentarily while the second helper brushes them clean of the few bees remaining, both sides being brushed at one stroke. On several different occasions the three men removed from the hives, cleared off bees, and brought to the honey-house, eight twelve-frame supers in ten minutes. This, however, is a trifle less than the *average* time taken.

At some of the yards a small push cart on a wooden track is used, Fig. 4. Mr. Holtermann is greatly pleased with this arrangement, and expects to install a similar cart and track at each yard. At some of the yards the "democrat" is used for convey-

* I have learned since writing the above that Mr. Holtermann's entire crop this past season ran something over 80,000 pounds. One apiary averaged over 160 pounds to the colony; another, 150 pounds, etc. He fed sugar this fall at the rate of 5 pounds per colony.

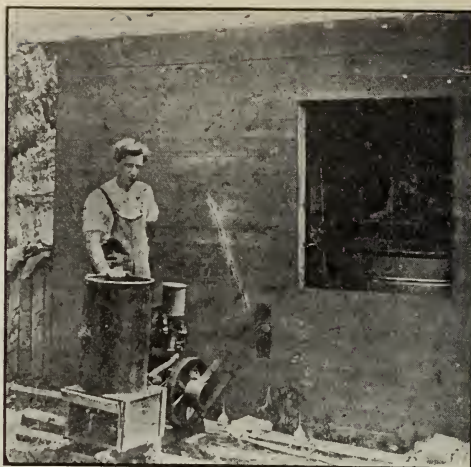


FIG. 2.—Gasoline-engine located outside the building, and belted to the extractor through a hole cut in the wall.

ing the honey up to the extracting-house. Fig. 5 shows the vehicle in question with empty supers ready to go back to the hive. Each extractor-house has an opening in the side through which the full and empty supers are passed to do away with the loss of time and greater danger of robbers caused by opening and shutting the regular door.

THE UNCAPPING - CAN VS. THE CAPPING- MELTER.

Mr. Holtermann has never used a capping-melter, but has seen it in use enough to make up his mind that he does not want such an outfit for his own use. He figures that the capping-melter, while it melts the wax and separates all of the honey, requires much more attention than an uncapping-can, which time could be used to better advantage at something else during the height of the extracting. Furthermore, while the flavor of the honey need not be injured if the melter is properly constructed, yet the color is apt to be darkened slightly.

The uncapping-cans are shown in Fig. 1.



FIG. 3.—Mr. Holtermann and two helpers removing honey from the hives. One helper opens the hives and manipulates the smoker. Mr. H. shakes the combs, then holds them while the second helper with two brushes clears off the few remaining bees.



FIG. 4.—The supers of honey loaded on the car, ready to be pushed to the extracting-house. Mr. Holtermann is greatly pleased with the car and its wooden track, and he expects to install a similar one at each yard.

A perforated-metal basket, only slightly smaller than the can itself, but just two-thirds its depth, occupies the upper half of the can. There are two cans, one for each operator, and they hold enough for half a day's work. The cappings are frequently punched and stirred with a board so that they are comparatively dry when taken out and transferred to a barrel. Two barrels will hold drained cappings for the entire extracting at each yard. The honey in the bottom of the uncapping-can is run out into pails and lifted up into the main tank. Mr. Wm. Lossing, of Phoenix, Ariz., uses very much the same plan but goes a step further in that he has a hose leading from the bottom of the uncapping-can to the bottom of the extractor, so that the pump elevates the honey from both into the tank.

THE STEAM UNCAPPING-KNIFE.

As mentioned before, Mr. Holtermann has not used the steam knives until this year; in fact, he told me he had been rather opposed to them, but he finds them a great improvement over the cold knife. With the steam knife Miss Holtermann was able to uncup three combs per minute, and keep up this rate right along. At this speed I fail to see why any one should need an uncapping machine. There is not a machine that has ever been tried that will uncup all combs. There is a certain amount of hand work that must be done any way. Taking this into consideration, it is my opinion

that no machine will ever be built that will exceed the rate of three combs per minute. I know that, under the most favorable circumstances, when the combs are uniform and bulged, a greater speed than this has been made with a machine. I know, too, that the advocates of the uncapping-machine have suggested that the honey-producers must take more pains to have their combs uniformly bulged on both sides. However, when all is said and done, it is my honest conviction that the uncapping-machine will be no nearer perfection ten years hence. In saying this I am not trying to throw cold water on the efforts of any one. I merely believe, as I said before, that no uncapping-machine, *taking into consideration the best combs that the average producer will have*, will ever exceed the simple steam knife.

It takes three operators with cold knives to keep up with the twelve-frame extractor, and only two using the steam knife. Mr. Holtermann was having a little trouble because the water in the boiler evaporated so fast that frequent additions were necessary. I think his trouble was that the oil-stove used could not be properly regulated, and there was far more heat than was really necessary. With a stove that can be turned no higher than required, two quarts of water will run the knife half a day, so that the boiler needs filling only once in the morning and once at noon.

Fig. 6 shows a corner of one of Mr. Holtermann's yards. The hives are located in groups of four. In the fall, after the supers have been removed, the four brood-chambers are located in the winter case that Mr. Holtermann has described in these columns before. Fig. 7 shows the cases set at one side of the yard, ready for use again this fall. By this plan the labor of packing and getting ready for winter is reduced to a minimum, and the colonies winter perfectly. It will be remembered that Mr. Holtermann, formerly one of the strongest advocates of cellar wintering, now winters entirely on the summer stands by the use of these mammoth winter cases, each of which holds four twelve-frame colonies. A full description of these cases, how they are made, etc., is given on pages 693-696, Nov. 15, 1911.

Fig. 7 also shows a new-style cover. Mr. Holtermann likes these better than any other he has ever used, and he has had a pretty wide experience. The cover proper is merely a square pan, inside of which is loosely placed a rim or frame made of $\frac{7}{8}$ material. Fig. 8. Inside this rim are placed several layers of heavy strawboard. The layers of strawboard furnish an excellent protection from the hot sun, and also make a very warm cover in spring and autumn. The galvanized-metal roof, the corners of which are soldered, makes the whole thing waterproof. Of course, when the cover is removed ordinarily, the inside part is lifted off with the metal part—that



FIG. 5.—The "Democrat" used to carry supers to and from the extracting-house at the yards where there is no cart and track.

is, the whole thing comes off together. In the picture Mr. Holtermann has merely lifted up the metal part to show the construction underneath. A quilt is laid over the top-bars before the cover is put on.

Just as I was leaving I secured a picture of Mr. Holtermann, his son and daughter,



FIG. 6.—A group of four twelve-frame hives, three of which had four supers apiece. In the fall the four hives are moved a little closer together, and the winter-case shown in the next illustration is set down over all.



FIG. 7.—The large winter-cases piled at one side of the apiary, ready for use in the fall.

and his four helpers, the latter stopping for a moment just as they were starting for an outyard. Fig. 9. Mr. Holtermann may well be proud of his efficient helpers, and they in turn appreciate the experience they are getting in so short a time. For my part, I never enjoyed two days' work more than the two days last July when I, too, was a Canadian.

Continued in next issue.

THE STEAM-HEATED HONEY-KNIFE AND THE HONEY-PUMP

BY R. F. HOLTERMANN

Beekeepers should be more interested in hearing of something which will reduce the expense and trouble of the production of honey than in reading about great honey crops. That which reduces the cost of uncapping before extracting, reduces the cost of producing extracted honey. Especially during the time of extracting labor is scarce and high-priced in this locality. This applies particularly to skilled help for the beekeeper. Doubtless this is true in many other localities. Give me any thing which cuts down the help required in extracting, and I shall be enabled to "keep more bees."

When, some years ago, Mr. E. R. Root handed me a steam-heated honey-knife, telling me that I could try it and he would like to have my report, I thought to myself, "I can not be bothered with a knife having a rubber tube at one end to hamper and restrict the uncapper's movements." I thought, too, that the extracting-house was hot enough without artificial heat. Consequently the knife was put upon the shelf. Some

time after, I mentioned the matter to F. J. Miller, of London. It was late in the season, and he had some extracting to do. He asked me to send it to him, saying that he would try it. This made me feel that what was of no use to me should not be of much use to Mr. Miller; and, of course, what would or could be of use to Mr. Miller might be of use to me. However, the steam-heated honey-knife was not tried the following season.

By last spring, however, inasmuch as there was much greater capacity for extracting I began to feel the need of something to assist in uncapping. I have had splendid help in uncapping; yet there was an apparent need of more help in this direction, so I ordered an outfit of steam-heated knives and one boiler having two outlets, to which to attach the rubber tubes



FIG. 8.—Details of the metal cover. The metal part is made like a large square pan with the corners soldered. The inside part, which is removable, consists of a rim filled with several thicknesses of heavy strawboard.



FIG. 9.—Mr. Holtermann and his force of helpers. Reading from left to right: Warren Munroe, Closson Scott, Glenelg Holtermann, Louise Holtermann, R. F. Holtermann, W. White, Walter Hull.

and knives. They came, we saw, they conquered. One uncapper can readily do in one hour what it required 1½ hours to do before, and then leave the comb in better shape. More, for it tends to warm the honey in the comb, so that it extracts more readily. The honey also, being warm, separates from the cappings more easily. Again, where the honey has been taken off the hive and away from the bees some time previous to extracting, the honey is somewhat rewarmed.

For new combs or, rather, combs which are not strengthened by cocoons left by hatching bees, the steam-heated knife is best of all, and overcomes with the greatest ease difficulties of a real nature. Where the combs have been used in the brood-chamber the steam-heated knife can not melt the cocoons; but if the knife is kept sharp they can be cut as before by the unheated knife. We do not expect to use the cold knife in the future.

THE HONEY-PUMP.

With the intention of trying to reduce labor in extracting, I conceived the idea of pumping the honey from the extractor to the tank. The pump I had formerly tried did not work; and during the season of 1912 we ran all our honey from the extractor into a pail and dumped it into tanks six feet high. With one twelve-frame extractor this kept one man fairly busy; but since a proper pump has been attached to the ex-

tractor, and in a proper way, the pump does this work without any danger of running over on the floor or dripping, and this almost saves the labor of one man. These two changes have proved a great help to me in extracting.

We hope to have next season two twelve-frame machines run by one engine side by side, and expect to have our combs thoroughly dry when leaving the extractor, and at the same time be able to extract readily 1200 lbs. per hour.

Brantford, Canada.

REQUEENING WITHOUT DEQUEENING

Some Interesting Facts

BY ARTHUR C. MILLER

“Eyes have they, but they see not; they have ears, but they hear not.”

In GLEANINGS for Nov. 1, 1913, page 747, near the top of the second column, appears the following: “‘Why, the other day,’ said our Mr. Marchant, ‘by error I introduced by the smoke method a queen in a hive where there was already a nice laying queen. Would you believe it? they accepted the introduced queen and killed their nice layer! What do you think about that?’”

Evidently both Mr. Marchant and the editor did not think along the leading line. Right before their eyes lay bare one of the

most promising innovations in bee culture. It is this: *Requeening without dequeening*. I have been doing it for some time in an experimental way, trying to find the basic laws, for as yet I can not succeed every time. I am not sure as to what conditions are essential to uniform success, and hence have hesitated to say much about it. But the present seems to be an excellent time to broach the subject. The eye of the bee-keeping world is on the new method of introducing, and all its variations and possibilities will be discussed and tried out, hence I believe it wise to mention what I have so far done, even though the work is not complete.

In the past I have stated that it was possible to introduce a plurality of queens and have them all accepted, but sooner or later all but one disappear. Keeping a plurality of queens in a colony has long been a dream of many, as a way to have large colonies. Its practicability or wisdom is not now under consideration, but the subject is cited merely to recall what has been attempted, and show how very near to a new thing some of the experimenters came.

Permanent plurality of queens had proved impossible; but the fact that bees would even for a time tolerate a plurality of queens (not under supersedure conditions) suggested to me the possibility that perhaps a young queen might be given without removing the old one and have the former supersede the latter. It was easy to put in the new queen, but it was not always the new one that survived.

Why? Frankly, I do not know. But if it works properly in a few cases it will be possible to make it work at our pleasure when we learn the laws underlying their behavior.

At present my idea is this (and please note that I am only stating it as a working hypothesis, that others may take up the work with me): A young queen light in eggs easily overpowers an older queen heavy with eggs. Also, such a young queen usually conquers an old and failing queen. If such proves to be always true, we have only to introduce an active queen light in eggs to a colony when its queen is heavy with eggs to have the desired supersedure take place.

Now, note this: A queen once safely in is safe until she meets the other queen. The more nimble queen usually wins; but sometimes, when perhaps queens are about equally matched, the bees take a hand, and then results are impossible of forecast, and either queen may be the victim.

The problem then is to ascertain the best age and condition of the new queen, and the

most favorable conditions in the receiving colony. Perhaps some day we may find *requeening without dequeening* simple at any time; but just now the conditions above set forth seem necessary, and even then the results are not uniform.

Providence, R. I., Nov. 10.

[Our correspondent may be on the right track. We believe he is correct when he says that "a queen light in eggs easily overpowers an older queen heavy with eggs." We have noticed this time and time again. In the same way, an interloping virgin—that is, one going into a hive by mistake, where there is already a laying queen—will in most cases supplant the reigning mother, for the very reason that Mr. Miller states.

We believe, also, he is right in saying that "a queen once safely in is safe until she meets the other queen." We have seen not a little corroborative evidence of this—so much so that we have come to believe that, when there are two queens in a hive, the bees rarely take a hand in the fracas between the rivals. They allow the rule of the survival of the fittest to work out, for "to the victor belong the spoils." It is a well-known fact in apiculture that two colonies may be united, each having a queen, without paying any attention to either queen unless there is a choice; but a further examination will show only one queen in the hive. It is probable that the rivals "settle their differences" by one killing the other. A royal combat between queens does not end like a duel between two men, both being injured or possibly killed, but in the case of queen bees it is simply a case of death to one without injury to the other.

We are glad that Mr. Miller has presented the case, even though he is not at present sure of his premises.

The following article touches on a phase similar to the one just preceding.—ED.]

REQUEENING WITHOUT KILLING THE OLD QUEEN

Two Queens in the Hive for the Fall Work

BY J. B. MERWIN

The requeening of our hives without killing the old queen is a method we have practiced in our yards for some time, and find it superior in a good many ways to the old style of requeening. In taking off our supers or upper stories for the last time early in the fall or late summer we often find a few hives, which, for various reasons, we wish to requeen. The queens in these hives may be old ones, others may not be doing good work, and some we wish to requeen for bet-

SKETCHES OF COLORADO BEEMEN

BY WESLEY FOSTER

HARRY CRAWFORD

I think it was in 1898 that father took a one-horse wagonload of comb honey to the city of Denver. I was allowed to go along to see the wonders of the great city. About half way between our home and Denver is a little station called Broomfield. There was there at that time a postoffice and store combined, a creamery, and a railroad station. Two or three houses made up the remainder of the village. A low white cottage set among a small clump of trees disclosed to our view a neat little apiary at the rear of the grounds. Close beside the house, but abutting upon the street, was the post-office and store of the village. As father always enjoyed the association of beemen we decided to stop and water our horse and get some crackers and cheese for our lunch.

ter blood, etc. Now, as the honey-flow draws to a close, and while there is still some honey coming in from fall flowers, we go to these hives that we wish to requeen and cage the queen of each hive. We make a note of this, and on the third day from the day we cage the queen we go to the hive from which we wish to requeen and take out a small piece of comb containing larvæ of the desired age. With this wrapped in a piece of cloth we go to the hive containing a caged queen. On opening this hive we find already started several queen-cells, each containing a larva and plenty of royal jelly. We now destroy all queen-cells excepting two or three nice ones, or as many as may be desired to leave, and with the transferring-instrument pick out the larva from these and transfer the larva from the piece of comb from the breeding queen. We next put back the frames, liberate the old queen, close up the hive, and when opened again in a few weeks one will be surprised to find two queens laying, sometimes on different combs, and again you will find them both on the same side of one frame.

This plan will work well on all queens two years old or over. We have not as yet tried superseding yearling queens by this plan. The old queen will not tear down the cells as supposed. Queens reared by this method are the same as queens reared by natural supersedure (at least they never fight, and I never heard them quarreling).

You will find this method superior to the old in more ways than one. Your hives are in no danger of becoming queenless, or the bees balling the queen when introduced. The queens are seldom lost in mating. Nine times out of ten you will find the two queens in the hive when you open it.

I presume that a queen-cell with a larva several days old could be introduced in place of transferring the larva, but we never gave this a trial.

At the present time, Sept. 8, we have several hives with two queens, and we expect to requeen a few more yet this fall, as we have a late fall flow of honey here from wild thyme.

To make the above plan a success you must be sure to destroy all queen-cells and cups excepting those you have transferred the larva to. With strong colonies we shake the bees from the frames. This gives one a chance to find all the cells.

Prattsville, N. Y.

[We believe Mr. Merwin has struck on an excellent plan for superseding old queens. It might work in the case of a yearling, but we doubt it. This will be worth pasting in the hat and trying out after the harvest next year.—ED.]

We met a quiet, unassuming young man, slight of build, about average height, and perhaps thirty years of age. This proved to be our first acquaintance with Harry Crawford, who was running the store and postoffice and caring for bees on the side. His apiary consisted of perhaps fifty colonies in neatly painted dovetailed eight-frame hives. Order seemed to be in evidence everywhere, and an absence of hurry and rush was another factor noticed. Mr. Crawford had not been married very long, and told us he was increasing his bee operations as rapidly as possible. In a short time he hoped to drop the store and postoffice business and use the room for a honey-house and shop. At that time he had one or two hundred colonies rented from others that he was operating on shares in outyards. In this way, by getting half the swarms he was steadily increasing his own numbers. His health had not been good for a number of years, and soon after our first meeting he began taking his family to California for the winter, where living is so delightful, and his health improved greatly.

Comb honey is Mr. Crawford's sole production, and the economy and systematic management of his work makes it possible for him, although not a robust man at all, to care for five hundred to seven hundred colonies with a small amount of help. Mrs. Crawford, of course, helps, and, I believe, some winters she has put together most of the sections. Miles, their oldest son, who is about twelve, is a great help to his father in the apiaries.

Mr. Crawford has all supers, about 3½ to each hive, filled and ready during the winter. All hives for increase are nailed and painted in readiness. During March



The birthplace of the Langstroth hive at Lyonsville, Massachusetts.

the apiaries are each year gone over, and any colonies found in a weak condition are placed on top of the strong colonies. No further attention is given to the bees till May, when heavy breeding begins. Stores are then equalized, if necessary; but little fussing is done with the bees to encourage quick breeding.

Clipping queens' wings is not practiced. Mr. Crawford inspects bees for swarming tendencies by lifting the hives up from the bottom-boards and looking for cells. By cutting cells and giving adequate surplus room and ventilation, swarming rarely causes any trouble. Colonies that persist in swarming are divided.

Foul brood is not tampered with. Hive, comb, honey, bees, and all are burned in a deep hole, and the ashes covered. Mr. Crawford has had very little foul brood to contend with.

All of Mr. Crawford's dealings are performed with deliberation. He bought an eighty-acre farm at \$50 an acre, and the bees paid for it in a few years. About a year ago he sold the farm for \$125 an acre. This has helped him to get well established where an occasional honey-crop failure will not seriously affect him.

Mr. Crawford has been a stockholder and director in the Colorado Honey-producers' Association from the first. He has the second Rauchfuss combined section-press and foundation-fastener that the Rauchfuss brothers made, and has used the machine every year. Several hundred thousand sec-

tions have been put together and started with it.

I have been told that, during the rush of the summer's bee work, when most beekeepers are working early and late, Mr. Crawford will lay off a day every little while and take his whole family to see a show. He told me that this year, when he harvested nearly a carload of comb honey his apiary work would be finished early on Saturday of nearly every week, and he would have the larger part of the day for rest.

Other beekeepers have made more money some years, but I doubt if any one in the Rocky Mountain region has averaged more year after year, and accomplished it with less stress and worry, than has Harry Crawford.

Boulder, Col.

THE BIRTHPLACE OF THE LANGSTROTH HIVE

W. W. Cary and L. L. Langstroth; Apiary and Business of Earl M. Nichols

BY E. R. ROOT

When bee culture in the United States was in its early stages in the late 40's, there was a galaxy of brilliant men who were interested in bees. First and foremost we should, without question, name L. L. Langstroth; then Moses Quinby, Samuel Wagner, Richard Colvin, Adam Grimm, Roswell C. Otis, and last, but by no means least, W. W. Cary, of Colerain, Mass. Up in the hills of Massachusetts, in Franklin Co., Mr.



A part of the vinegar-plant and home of W. W. Cary & Son, Lyonsville, Mass.

Cary began keeping bees. By a very fortunate combination of circumstances Mr. Langstroth, then principal of a ladies' academy at Greenfield, Mass., got in touch with Mr. Cary at Colerain. Langstroth was developing his hive, and needed a practical man like Cary to test it. While in West Philadelphia Langstroth had been studying Huber, and he had learned much from that wonderful naturalist, who, although he had no eyes, saw far more of the mysteries of the hive than any who had preceded him. Although he felt much indebted to this prince of investigators, he saw that the Huber leaf hive was too crude to yield practical results. But crude as the hive was, Huber was able to separate fact from fiction. These he later gave out in a series of remarkable letters to his friend Charles Bonnet. This series, for accuracy of observation and a general fund of information regarding the habits of bees, has never been surpassed. Indeed, it may be said that Huber furnished the fundamentals of modern scientific bee culture; but it remained for Langstroth to develop a hive and system that would place beekeeping on a practical and commercial basis. How natural, then, that he should seek out a man like Cary! It seems that various models of his hive were made in the Cary workshop. These hives were then placed in Mr. Cary's apiary to be tested out.

If we could do the paradoxical thing of reading between the lines of unwritten history, we should probably find that W. W. Cary was the mechanic who furnished Mr. Langstroth not only skill but a shop in which to perfect that wonderful hive that

made it possible to remove any one comb without interfering with any of the others, and without the necessity of slicing any comb from the inside of the hive itself.

At all events, it was after Langstroth left the Cary workshop that he patented his hive and his book. This was published in 1853, a reprint of which will soon be ready for the public. How much of value Mr. Cary himself contributed to the success of the invention we do not know and never shall. When we visited Earl M. Nichols, a son-in-law of H. F. Cary, this very workshop was still in existence, and at the time of our visit it was standing without alteration as in the days when Langstroth graced it with his presence. Unfortunately we had only a small kodak with us. Eagerly we pressed the button, and here it is. The building, we understand, has since been removed to make room for a building of greater capacity for the growing business of W. W. Cary & Son and the son-in-law, Earl M. Nichols.

As has been done many times before, Herbert F., the son of W. W. Cary, took up the work of his father and built up a magnificent business in the manufacture of pure cider vinegar, for it seems the senior Cary produced honey and vinegar; and while the junior Cary continued both lines of business he appears to have transferred the beehive to his son-in-law, Mr. Nichols. In the mean time Mr. Cary devoted all his time to the vinegar business until he had a plant that is one of the largest and best in the United States. There may be larger vinegar-factories, but probably none whose production is confined entirely to a product from the juice of the apple.

The side hills all about Lyonsville (a short distance from Colerain) are peculiarly favorable for growing apples, and they are frequently found growing there in their wild state. The modern apple-grower knows he must have, in order to get the best results, what he calls "air drainage" as well as water drainage. These hills are well adapted to both, and hence we find immense quantities of apples are produced naturally and in a cultivated state all over this part of the country. Indeed, this vinegar-plant has developed a demand for apples, so that more and more are being produced.

We found a beautiful home on the side hill, the factory buildings in convenient reach, and a new up-to-date private water-works plant drawing water from a lakelet higher up on the hill. Mr. Nichols, the bee-man, is certainly a live wire. He is engaged, not only in the production of honey, but in the sale of beekeepers' supplies, and during the off season helps out in the vinegar business. It is but natural that he should continue the supply business, because the senior Cary was an expert maker of foundation and a queen-breeder. Langstroth said of him, in a glowing tribute which he paid to his friend in *GLEANINGS* for 1886, page 11, that he was the first man to send a queen across the ocean in a single-comb nucleus with a few workers. No small wonder that he should find that he was the man to help him perfect his hive.

The apiary of E. M. Nichols, with Mr. Nichols in the foreground, is shown on the front cover page of this issue. The first real Langstroth hive that was ever made was placed in this apiary in the very spot where Mr. Nichols is sitting. This apiary certainly enjoys a distinction that no other apiary has or can have. The more distant view shows the home poultry-house and the beeyard over to the extreme right. The whole plant in all its details shows the result of splendid business management. The presiding genius of the whole, Mr. Herbert F. Cary, seems to have the faculty of casting his mantle on his sons and son-in-law. At any rate, they have the business so well organized that they turn him out to grass, as he says—that is to say, he and his wife go to Florida every winter.

NEW FOUL-BROOD LEGISLATION PROPOSED

BY H. E. HARRINGTON

On page 138, March 1, the editor of *GLEANINGS* tells of a tramp beekeeper spreading bee disease, and speaks of making laws to control the situation. Well, there are many beekeepers who are not

tramps, but farmers, who are doing just as bad if not worse work than this tramp, because their name is legion. They do not pretend to know much about bees, but just keep a few for honey for their table. Their colonies may be reducing each year, but they seem to find a way to account for it, and declare they have no foul brood. They seem to think that if bees have foul brood they will find something in their hives as big as a fire-log.

The inspector is generally handicapped for funds to pay for the work. With all the laws we have, bee disease has increased throughout the United States as a whole.

While in Washington and Oregon I became convinced that a compulsory law would have to be made before the bee-disease situation could be controlled, just the same as those States made compulsory spraying laws, by virtue of which a person must spray his fruit-trees, or cause them to be sprayed, or they would be cut down. This law controlled the situation; and the result was perfect fruit that brought high prices.

I will propose a new law, that a person to keep bees lawfully must have a legal permit to do so. The State Beekeepers' Association should have rules compiled or sanctioned by the Bureau of Entomology, Washington, D. C., saying just what treatment a healthy colony of bees should receive in a diseased locality—viz., inspection. The said association might propose certain persons appointed in certain places as most convenient to grant permits, and the governor of the State would appoint them. These rules should be so compiled that the applicant, on signing them, agrees to them, thus making a contract with the State or county. Literature telling how to detect and recognize said disease or diseases, and the treatment for the same, with a lawful permit to keep bees would be given to the applicant, and a small fee charged. If the applicant wants assistance the office could furnish it; but the applicant should pay a fair sum for the work.

The office should see that he keeps his contract, and if any old neglected cases of disease were found among his bees he should be fined for each case so found. This would go to the office.

If a person refused to obtain a lawful permit the State could prosecute him and fine him, both spring and fall, for all colonies so kept.

These, in brief, are the main points of the law I would propose made. Of course, changes could be made in it as might seem necessary. The old laws would then be canceled. A small appropriation should be

made by the State. It seems to me that this will control the bee-disease situation perfectly; and as it would be a matter of record, statistics could be quickly and accurately made.

Lyndon, Vt.

MAKING THE MOST OF INSPECTION

Better to Spend Funds for Education

BY FRANK C. PELLET

In States where beekeepers have not already secured the desired legislation it is very important that they start right and thus save the annoyance of having to make a second fight to secure better laws. Each State seems to have different laws, and every inspector seems to have a different plan. It is almost impossible to secure a sufficiently large appropriation to do thorough inspection work over the entire territory where disease is present in any State. That being the case, educational work is even more important than the actual inspection. After two years' experience as State Inspector I am fully convinced that it would not be wise for the State to expend the necessary amount to inspect all diseased colonies, even though a legislature could be induced to provide the funds. In my opinion it is better to provide an amount sufficient to meet all emergencies, and to expend the greater energy in educational work.

In this State the inspection work is in charge of an official who is designated "State Inspector of Bees," with power to appoint deputies. The term of office is two years, and the inspector is appointed by the Governor. It thus becomes a political appointment. Fortunately, so far no friction has developed between the Inspector's Department and the beekeepers. The beemen have been uniformly friendly, and have rendered every possible assistance in finding disease, either in their own apiaries or those of the box-hive farmers who permit a few colonies to remain in some out-of-the-way corner. Iowa is also fortunate in having a governor who is not inclined to ask any questions about a man's political affiliations when making appointments of this kind. There is danger, however, in making an office of this kind a political appointment; for in many cases the office is filled rather because of political connection than personal efficiency.

Last year I became convinced that our present plan was not the best, and accordingly recommended that the work be placed in charge of the State Entomologist. A bill was accordingly introduced in the lower

house with that end in view, and I was called before the committee in support of it. The thing looked so reasonable to me that I expected it to pass, and prepared to turn the work over to Prof. Summers, and expected to be relieved of further responsibility in connection with the inspection. The bill, however, was defeated in committee by one vote, and I still hold the job. There was some fear expressed that, should this work be added to the Entomologist's other duties, it might suffer because of being placed in the hands of incompetent men. Those who know Prof. Summers and his thorough manner of dealing with every thing placed in his charge had no fear on that score.

If I were planning a campaign from the beginning in a State where no laws had already been passed I would begin by working for the establishment of a school of beekeeping in connection with the State Agricultural College and the inspection work in connection with the school. It is difficult to get high-grade men for a few weeks in the spring and summer for the amount available. If the same men can be employed during the fall and winter months in the college it will be possible to get the best talent in charge of our bee work, and to keep them employed throughout the year. Too much importance can not be placed on the work of the college in class work, bulletins, and extension lectures in the farmers' institutes.

In States where nothing is being done for apiculture at the agricultural college, nothing is to be gained by placing the inspection of bees in charge of the entomologist, as at best it will be a matter of secondary consideration with him.

Here in Iowa we are working for the establishment of a department of apiculture at the Agricultural College, with the idea that the inspection work will ultimately be combined with educational work in charge of this department, all of which will naturally fall under the supervision of the Entomologist.

Atlantic, Iowa.

CONDITIONS UNDER WHICH SWARMS MAY CARRY FOUL BROOD

BY GLENWOOD BEARD

With reference to footnote on p. 734, Oct. 15, in answer to J. E. Battram, of Ontario, Canada, I would say that swarms from colonies infected with American foul brood *do* carry with them honey which is diseased, and a number of times I have seen the dead larvæ in newly built combs drawn from full sheets of foundation.

This question, in my experience, depends wholly upon the time of year and season. In a season giving a good honey-flow and during or immediately after such a flow, a swarm seldom carries disease with it sufficient to show when hived in full foundation sheets, while in a moderate or slow honey-flow, where colonies are badly infected with disease, I have known swarms to carry disease which would show in the first set of larvæ in new combs drawn from full sheets of foundation. A colony showing but a few infected cells where disease is just beginning to develop is not to be considered in comparison with a colony in the advanced stage.

A swarm from the one showing but a few cells can safely be given full sheets of foundation unless it is previous to or long after the main honey-flow.

I had ten years' experience in keeping my apiary at home free from American foul brood. A number of my neighbors had a few colonies of bees, and we all knew that the malady was lingering about, but no one seemed at all alarmed about it. I had a hard fight in making some experiments. I was defeated, as disease was so general I didn't know whether my plans had been given a fair trial.

An apparently healthy swarm hived on one-inch starters, a swarm which has built a set of combs completely, and has honey and healthy larvæ, may become diseased at this point, because a swarm from a diseased colony united with the bees in question, the trouble showing up in about two days.

I do not think the Quinby treatment and shaking of a diseased colony upon full sheets of foundation can be favorably compared. A swarm under normal circumstances can stretch foundation in full sheets, with the addition of wax produced by the bees themselves in 24 hours. They deposit some honey, but that length of time is not sufficient for them to consume all the honey they carried.

The Quinby treatment is to build from the start, using only the wax produced by the bees, resulting in the greater production of wax, and more time taken to stretch cells sufficiently to deposit honey.

Barberton, Ohio.

AMERICAN FOUL BROOD

BY A. C. GILBERT

After keeping bees over 35 years the first case of foul brood I ever had or had seen was in the summer of 1910. I had read descriptions and had seen illustrations, and realized, as soon as I looked at a comb, that

it was a typical case. The combs were completely filled with dead and filthy brood, and a very offensive odor was soon detected. After trying the test of seeing if the dead brood was stringy I knew for a certainty it was the American variety.

I decided to find out how it found its way into the apiary. Besides the colony so badly affected I found seven others with a few cells in some of the combs. I then knew that the one colony so much worse than the others must have been affected the year previous. It was a colony with an Italian queen I had bought. That was where the trouble began. I introduced the queen in the cage it was sent in. At the present time there would not be any risk to run, since the candy the cages are supplied with is supposed to be free from all germs. The safest way, however, would be to introduce in a new cage. I said to myself, "I have a job on hand to keep it from spreading."

My first move was to contract all entrances to hives that were affected. I shook the bees of the badly diseased colony off the infected combs on combs of solid honey (except one or two empty combs). Any old combs not perfect, that are free from disease, will answer to catch the honey the bees may deposit for the first day. Then remove and melt up.

The other seven colonies I treated the following spring during a fine flow from the willow, dandelion, etc. The bees were shaken, or, if the nectar was thin, brushed on frames of foundation and one or two empty combs to be disposed of as aforesaid. If they lacked honey before berries and clover yielded they were either fed syrup or supplied with combs of honey. That was the last seen of foul brood in our apiary, and now it is completely wiped out. I think the sooner the disease is discovered in an apiary the better, for it is so much easier to get under control before it spreads.

If inspectors would look after the careless beekeepers (those not up to date, and who never think of looking into a brood-chamber), I think it would soon be annihilated. To sum up, if colonies are weak and badly diseased, destroy them before taking any chances of their being robbed. Leave no honey around to start robbing. Keep entrances contracted, which will often prevent robbing. If a colony is found affected, look over every one in the apiary to know for a certainty whether it is affected or not.

Honeoye Falls, N. Y.

[Instead of shaking on old combs we believe it is far safer to shake on to starters, so that in building comb the diseased honey may be used up.—ED.]

FEEDING SUGAR SYRUP

BY J. E. HAND

One often hears it said that a pound of sugar syrup, well ripened, and stored within the combs, is the equal of a pound of good honey as food for bees. While I am not in sympathy with the assertion, yet, taken in the abstract, it may, perhaps, be near the truth. Considering the interim, however, the statement is misleading in the extreme. Indeed, if the life-history of the bees, and its relation to the evaporation and inversion of thin syrup were better understood, there would be less talk about the value of sugar syrup as food for bees. Not so very long ago many were advocating sugar syrup as a cheap and effective substitute for honey as food for bees. Some even went so far as to exploit methods and systems to compel the bees to store their honey in the sections in order to enable them to realize a handsome profit by substituting sugar syrup as winter food at half the price of honey.

The delusion was far-reaching and widespread, but it finally became evident to a few that the profits were coming out of the small end of the horn, and it became painfully evident, from the lost vitality and premature death of the bees that inverted the syrup, that its effectiveness did not extend along the lines that harmonize with the financial interests of the beekeeper or the welfare of his bees. I was forced to this conclusion as a result of an extensive experiment conducted with the view of ascertaining results along other lines; but it was equally effective in enabling me to ascertain the effects upon bees resulting from long-continued feeding of thin sweetened water, comprising a solution of 8 to 10 parts of water to one of sugar.

This feed was given in the open, and the feeders were refilled daily from the middle of July to the middle of September. and required the use of a considerable quantity of sugar. The bees took the feed readily, and without any excitement or quarreling, and whenever the feeders became empty they would quietly go about their own business, and there were no robbers nosing about. Indeed, so far as external conditions were concerned, the process seemed to have about the same effect upon the bees as a natural harvest; for I could handle them without smoke, and leave the hives open, and combs of honey exposed, without any attempt on their part at robbing, notwithstanding there was a dearth of nectar during the entire period. The external conditions were so highly satisfactory that I

became quite enthusiastic concerning the artificial honey-flow.

Since this was the main point concerning which I was seeking information, I contented myself with external observation only. Finally, however, I made an examination of the conditions within the hives, expecting, according to theory, to find every thing booming, with plenty of brood and bees; in short, I expected to find conditions about the same as during a continuous mild flow of nectar from natural sources. My expectations were not realized, for the examination revealed conditions of a far different nature than I had hoped for and expected; for while the combs were well filled with seemingly well-ripened stores, evidently the ripening process had a deleterious effect upon the bees, to the extent that in each and every case the colonies were greatly depleted in numbers, and unmistakably betokened weakened vitality and premature decay of vital tissue. The condition of the brood compared favorably with that of the bees, and was away below normal, as represented where no feeding was practiced.

Notwithstanding these colonies were placed in winter quarters exactly the same as I have practiced for a quarter of a century, with practically no loss, more than half of them were dead before the first of February, and the remainder died before spring. There was no indication of dysentery nor distended abdomens nor fermentation of the stores, and the bees were an exceedingly hardy strain of straight three-band Italians. They were perfectly healthy at the beginning of the experiment. The feed was composed of the best grade of fine granulated sugar obtainable, mixed with pure water in the ratio of eight or ten parts water to one part of sugar. Not being qualified to form scientifically correct deductions based on the results of chemical analysis, I could only reason from analogy, based on the results of external observation and comparison in a general way.

Reasoning thus, all the evidence visible pointed to a loss of vitality and premature death resulting from long-continued and incessant labor of a very exhausting nature in expelling the excess of water from the feed, which can be performed only when bees are on the wing. Hence two months' feeding of so weak a solution would necessitate a flight of hundreds of miles during the season when bee nature demands relaxation from excessive activity, which undoubtedly accounted in a great measure for the general lassitude and worn-out condition of the bees. This theory is supported by the fact that the life-span of bees hatched too late in the season to assist in honey

production is incomparably broader than where the conditions are reversed. While this theory concerning the method of expelling the excess of water may be regarded by some as unorthodox, it can be verified by external observation, and, undoubtedly, by a correct knowledge of bee anatomy.

I was also led to this conclusion by the result of subsequent experiments, where the density of the feed was increased to a ratio of $2\frac{1}{2}$ parts of sugar to one of boiling water. Several colonies were included in these experiments, and on several occasions, with similar results. The fact that this feeding was done for another purpose did not change the results. In this case feeding was continued during the same period, and the bees were given all they would take from a feeder under the hives. An examination of the internal conditions within these hives at the close of operations showed a marked difference in conditions. Some colonies evidently had extra-prolific queens. These seemed to be in a perfectly normal condition with plenty of brood and bees. While others, apparently having less prolific queens, coupled with the habit of Italians to store honey in the brood-chamber, resulted in the diminution of brood, hence a dwindling of the working force was noticeable. Since this was evidently due to crowding out the queen by long-continued heavy feeding it proved nothing.

In an article on page 729, October 15th, by J. A. Heberle, B. S., of Bavaria, Germany, he quotes Dr. U. Kramer, an eminent scientist of Zurich, Switzerland, to the effect that the weakened vitality resulting from feeding sugar syrup is due to copious drafts of albumen from the body of bees while inverting it. Since the evil effects resulting from the feeding of thin sweetened water are far more sweeping in their devastating effects than is found in the feeding of syrup of greater density it is evident that such a practice, if carried to any considerable extent, will not be without its deleterious effects upon the bees as well as upon the following honey crop; for in view of this convincing evidence no appreciable harm will result from the feeding of sugar syrup of a proper density in any quantity. In my estimation the proper density of sugar syrup for feeding bees under all conditions is $2\frac{1}{2}$ sugar to one of water (boiling).

In view of the disastrous results that are likely to follow the injudicious feeding of half-and-half sugar syrup, as usually practiced, undoubtedly the inexperienced will find it to their interest to refrain from feeding sugar syrup, except as a last resort, to recuperate depleted stores. Personally I prefer solid sheets of candy molded in wired

frames while hot, and placed one on each side, close to the brood-nest. If left too long, however, the candy will be consumed, and combs built in their stead that will be likely to comprise a large percentage of drone-cells. It may be in order to state further that, in conducting these experiments, in every case ample provision was made for storage above the brood-chamber.

Birmingham, Ohio.

HONEY SHIPPED SUCCESSFULLY BY PARCEL POST

BY C. W. DAYTON

Dr. Miller's experience, as stated on p. 333, May 15, and Dr. Moody's experiments as given on p. 633, Sept. 15, do not agree with my experience in shipping extracted honey by parcel post. I have shipped about 300 parcels, and have had but one leakage, and that happened where I put up three 12-oz. soldered cans in a sack loosely, without any other packing material for protection. And even then I believe the tin would not have loosened if it had been soldered as strong as it ought to have been. In soldering there should be enough solder put on to fill the groove nearly, not merely enough to stop the crevice. For 12 or 16 oz. tins I take 14 sheets of common newspaper, 12x8 inches, and wrap it around the long way and fasten with a piece of wire. Then I wrap four of these packages in another heavy wrapping paper and rope them tightly in all directions, twisting the twine at every crossing. I then put on the tag, and the package goes safely. Gallons and half-gallons I am sending out by mail nearly every day, and the recipients write me that there is safe and sound arrival.

The cans should completely fill the box. The gallons and half-gallons are the round-cornered square cans boxed with wood. They have $\frac{5}{8}$ ends and $\frac{1}{4}$ -inch sides, thoroughly nailed. Then I wrap around each end a strong wire and twist it up tight with pliers. Then another short piece is put on for a handle. I also paste on the box my honey price list and a red label giving directions to handle with care. The postmaster also puts the packages in a special sack intended for fragile packages. Beekeepers should look after these affairs when mailing honey.

I have shipped these packages up to 10 lbs. to all parts of the United States and several foreign countries, and have complimentary letters from the receivers of the honey from these distant countries on the safe arrival of the honey.

The finest thing that has happened to bee culture in many a long year is the

parcel-post mail privilege. Beekeepers should appreciate it, since we were so long in getting it.

Owensmouth, Cal.

IS IMMUNITY TO POISON FROM BEE-STINGS INHERITED?

BY W. A. H. GILSTRAP

Neither Mrs. Gilstrap's parents nor mine ever worked much with bees. She has worked with them a good share of the time for 20 years, while I have worked with them for 23 years, which means we were both inoculated with the poison of bee-stings quite a while before we were married, which was 17 years ago. Most of our early work was with the ordinary California mongrel bee called hybrids. They can sting. In her early experience Mrs. Gilstrap was stung half a dozen times one day, which caused her to "break out" as if she had hives, and she was quite sick. In two days she was able to be up and tackle bees again.

Now, you might hunt a while before you would find a woman who likes to work with bees as well as Mrs. Gilstrap, or one who can stand stings as well.

In my early experience with bees the stings were so painful and left so much soreness that I seriously contemplated quitting; but the fascinating nature of the business perhaps had more to do in keeping me with bees than financial considerations did, till I became fairly immune to the poison.

A bee-sting has never been serious with any of our eight children. The most remarkable one of the children in this line is our youngest boy, Percy, who got over a hundred stings above his shirt collar at one dose before he was three years old without any very serious results. Perhaps an account of that affair would be of interest to GLEANINGS readers.

The apiary was south of the house, perhaps 40 to 70 yards, with bamboo on the west and north sides. The south part of the apiary was occupied by scrub bees which I had bought and brought home, killed the queens, and replaced with ripe cells of good Italian stock. From the house I passed along west of the bamboo and entered the apiary at the southwest corner, passing out of the apiary at the northeast corner, in the vain search for a possible swarm. I turned off the road to care for a horse before returning to the house. At the southwest corner of the yard one of those black (or nearly black) bees stung me on my head.

As Percy afterward told us, he followed me through the apiary by sight and could not have been far from me. He passed me

while I was caring for the horse; but I did not see him nor hear him. His mother later noticed that he seemed fretful, and told him to go to bed, which he did, and then he called for a drink. Before the water could be brought from a pump in the yard, he got a cup to get a drink, then said, "Mama, bees hurt me."

"Where?"

"On my head."

She called me at once, and we commenced scraping the stings from his neck, face, and head, where they were closely and rather evenly stuck. His hair was quite short. After removing 35 stings with a dull knife it was clear that I had not removed a third of them while Mrs. Gilstrap was busy on the other side. He cried a little then, and twitched, which made us fear spasms. We put strong soda water on him, gave a little diluted whisky, and phoned from a near neighbor's to a doctor less than two miles away, and took some ammonia back, which was applied where it would do good, but could not apply it in the nose and on the eyes where the stings were as thickly placed as anywhere.

The doctor said we had done about all he could have done. While he is opposed to intoxicating beverages as much as we are or can be, he said the whisky would tend to prevent spasms; but if spasms were once commenced, whisky would make them worse. The face was somewhat swollen for a day or two, and for several days there were dark spots, much like those left from measles. He lost a few hours' play from the encounter.

About two weeks later several of the children were with me with hands, faces, and feet bare, in the Italian part of the yard. Percy got a sting on the foot, probably from stepping on a bee, when he said, "You old bad bee!" then complacently laid down and went to sleep near the hive.

Modesto, Cal.

GIVING BEES A FLIGHT IN MID-WINTER

Providing a Cage in a Warm Room for Emergency

BY DANA F. DOW

I was much interested in Mr. Whitten's article, p. 182, March 15, and your editorial comment on it, p. 170. I have done some winter manipulation of colonies, not for the purpose of breeding them up, but to give needed flights and supply sealed stores.

Winter before last, very cold weather set in the first of December, with the temperature frequently at or below zero. About the middle of January there were indica-

tions that some of my colonies were suffering from dysentery. The fall honey here is principally from asters and goldenrod, and contains considerable pollen, so that bees wintered on it need several flights during the winter.

As there was no prospect of mild weather I cast about for some way of giving the bees in the affected hives a flight. Accordingly I made a framework three feet square and four feet in height, and covered it with common blue mosquito netting. On one side the netting was left very slack and long, and not tacked to the bottom of the frame, thus providing a place to pass a hive and tools or sealed combs into the cage. On the same side two holes were made in the netting, and a pair of bee-gloves were sewed securely to it. The cage was put in the dining-room before a large sunny window, with the slack side turned away from the light.

Sitting on a low stool I was enabled to open a hive and give the bees a flight, supply sealed combs of honey, and perform every manipulation as easily as in summer, and all without a bee escaping.

Before putting a hive in the cage I placed a layer of old newspapers on the bottom, and when the bees came out for a flight the discharge of feces was something amazing in quantity, to say nothing of odor.

The live-cover was left partly off; and when the bees were tired of flying, some of them would find the hive and set up a call and attract their companions. By covering the top of the cage with a thick cloth, and allowing the light to shine only near the entrance, all the bees would crawl down and find the hive. Several colonies were short of stores, and I supplied them with sealed combs by this method.

After giving the bees good flights for two days, the next evening I confined them in the hive with a piece of wire netting, and then set the hive in a cold room for a day to give them time to re-form their winter cluster. The next evening I put them back in the outside case on the winter stand and removed the wire netting.

One colony furnished a surprise. It was only a three-frame nucleus in a thin box, and had been left outside and simply covered with old carpeting and boards. As there were no signs of life about it I concluded it had succumbed. However, when the box was put in the cage, and the cover removed, it proved to be literally crammed with bees, and they boiled out full of fight at being disturbed. On taking out the center frame I found a large patch of brood on each side, which was surprising, considering that it was only a nucleus, and had been subjected to severely cold weather for six weeks. This

nucleus made a strong colony the following summer. And here I may say that these bees were Banats, the only ones I ever owned. They were certainly tough and hardy, but I had to get rid of them for their drones were so vigorous that it was almost impossible to get Italian queens purely mated, even with the air filled with drones from twenty-five Italian colonies in the yard.

Several Italian colonies that I examined had a small amount of brood, but not as much as the nucleus before mentioned. Of course it is better to avoid disturbing bees in the winter; but in cases of emergency a cage like the one I have described will meet all requirements, although the height might be somewhat reduced and still give plenty of space for flight.

Ipswich, Mass.

BREEDING FROM IMMUNE STOCK TO GET RID OF PARALYSIS

BY CH. NOEL EDDOWES

In an article, p. 723, Oct. 15, Mr. N. L. Stapleton advocates requeening as a cure for paralysis. I am in accord with Mr. Stapleton as far as that, but I do not agree with him that the queen is not responsible for the trouble. In my experience I have found that the queen has most to do with the trouble, in that her bees are more susceptible to the attacks of paralysis than the bees of a queen that comes from a stock that has not suffered from the disease. I am (as Darwin was) a strong believer in the survival of the fittest; and if a breeder wishes to get the most fit he must select from queens whose bees do not show signs of disease.

In 1905 I bought 40 colonies of bees. When the season came when bees are attacked by paralysis, the apiary was strewn with dead and dying bees so that it was impossible to take a step without treading on bees. I noticed, when examining the hives, that there were two colonies that did not show signs of paralysis. These two queens I picked to breed from. The next year the improvement was marked. I continued to pick my queens in this way until now I rarely have more than one per cent of my colonies attacked by paralysis. But this was not enough, as the supposition had to be proved.

In 1909 I had a queen whose bees contracted paralysis. I reared five queens from her and scattered them through the apiary as far apart as possible. The rest of the apiary was requeened from a queen that I knew was practically proof against paraly-

sis. It was curious to see how the disease picked out those queens which had inherited the constitutional weakness which made them susceptible to its attack. I made no attempt to cure them. One was killed right out; three others were badly attacked, but recovered; one was not attacked. None of the colonies headed by the daughters of the immune queen were attacked.

In 1913 I reared ten queens from a queen I wished to test. I knew nothing of her antecedents, but she had proved herself a good queen and had not shown signs of paralysis. There were 56 colonies in this out-apiary. The rest were requeened from one of my breeders. Paralysis attacked this queen's colony and seven of her daughters, but not one of the colonies requeened from my breeder. I keep a very careful record of my breeders so that I can look up my record-book and know what any queen's antecedents did. The quickest way I know to cure paralysis is to unite a nucleus with a young queen, known to be of immune stock, to the sick hive. The bees of the nucleus will, as a rule, kill and throw out all diseased bees, and the colony will be cured in about a fortnight. I once had a queenless and broodless colony attacked by paralysis. I gave the bees a queen and brood at the same time; and as soon as the brood hatched, and the young bees had taken the place of the old bees, paralysis disappeared.

From my experience I think that paralysis is transmitted from bee to bee so that, when a colony swarms that has paralysis, only the healthy bees go with the swarm, so they start fresh and keep well. I have not found that it makes any difference whether the colony remains without brood for any length of time or not; for when I treat a case I kill the old queen and introduce the new queen at once. If the colony is very weak I give combs of hatching brood.

Mr. Stapleton will find that, if he continues his observations for a sufficient length of time, queens whose colonies have been once attacked are very liable to a second attack. After a beeyard is entirely cured for three months, it is expensive to have to cure it again if the beekeeper's time is worth any thing. Prevention is better and cheaper than cure. Choose immune bees by selecting and breeding from queens whose bees are not attacked; and by continuing this process over a number of years the bees, for all practical purposes, will be immune to the disease. Never breed from a queen if her bees have been attacked by paralysis, no matter how good she may be in other respects.

Government Farm School, Jamaica, Oct. 31.

CONVERSATIONS WITH DOOLITTLE

Continued from page 842.

side, which will be six inches beyond each center of each.

Let us now see how it works. The first glint of morning sunshine reaches the hive just the same as it does the hive with no covering, inviting the bees to the earliest activity, while the workers keep right on at night till the last rays are hid behind the western horizon, thus giving the early and late flight which both the editor and Dr. Miller agree upon. This gives a start and a warmth at all times, looking toward the prosperity of the colony, as no other can. At about 8:30 A. M. the hive goes into the shade, through the projection of the shade-board, and stays thus till about 3:30 P. M., when the sun again warms the hive, helping to carry out early brood-rearing, and not interfering with the labors of the colony in hot weather.

Binding Gleanings

Having had occasion lately to bind several volumes of GLEANINGS and other bee-papers, I thought it might be found useful to others if I told how it was done. The plan may not be perfect, but it is certainly a cheap and simple way of preserving journals for future reference.

After arranging the numbers for the year in consecutive order, commencing with January and ending with the index, the covers and advertisement pages were removed. Next the edges were placed evenly together, and the whole lot then securely clamped between two boards, of which the top one was about $\frac{1}{4}$ inch from the back edges. Three thin oval nails, two inches long, were driven through the papers, level with the edge of the top board, to make the necessary holes. The bottom board is then shifted back a little, and the first nail withdrawn with a pair of pliers.

A length of waxed twine was next threaded through the hole, cut round outside, pushed through again, and securely fastened. After drawing the nails the two other holes were treated in a like manner, thus holding the papers tightly together. The back now receives a thick coating of glue, and likewise a strip of calico wide enough to fold around each side for about half an inch when in position. A heavy weight placed on keeps the journals flat until the glue has dried.

For covers, a couple of stout cards the correct size, and a piece of glazed linen, are all that is necessary. A space wide enough to admit the back of the papers must be left between the cards, to which the green linen is now glued. To fix the cover on, it is merely glued to the back and allowed to set.

Although neat in appearance, card covers are not absolutely necessary; but when dispensed with, a front and back page of GLEANINGS with one of the fine photographs may be pasted on instead.

A. H. BOWEN.

When I first read GLEANINGS four years ago I was surprised to run across *Our Homes* in an apicultural paper. Since then I have seen the *Farm Journal* and *Successful Farming*, both of which not only guarantee advertisements, but also acknowledge the fact that there is One who is to be thanked for all the blessings we enjoy.

St. Paul, Minn.

H. G. BRANT.

Heads of Grain from Different Fields

Extracting from Brood combs in September

October 25 I put my bees in their winter berths consisting of the telescope for each individual hive in which they came through last winter in good shape. I much prefer wintering my bees on their summer stands, as there is always some loss in both the fall and spring, even if one moves his bees only a few feet. So by using the telescope, and leaving them undisturbed, I find it works much better than lunching them. As to cellar wintering I much prefer the summer stands. There is no lifting of heavy hives, no anxiety as to temperature and ventilation. I simply set the telescope over them, and pack dry leaves around them. Then I forget them until about April 1, when the telescope should be removed and the hives examined and equalized as far as it is possible to do so.

I am right now wondering if there will not be a lot of dead bees next spring that now seem to be in good condition.

I have been guilty of a serious error, and I believe many in this State are guilty of the same error—viz., I failed to extract the honey from the brood-chamber in September, spread the brood, place the empty combs in the center, and feed some good sugar. On examining my bees in late September, preparatory to getting them ready for winter, I discovered many hives with no brood, and others with but little. I attributed this condition to the fact that, when the honey-flow from the sweet clover ceased, the queens stopped laying; and when the aster flow commenced, there was but little room for the queen to deposit her eggs, as she had been so crowded with sweet-clover honey. I feel quite sure that I am going to lose a few bees on this account, especially if we have a hard and prolonged winter. So far as I have been able to learn, many colonies of bees are in this condition, and I greatly fear that next spring will find many of us with few bees and plenty of honey.

Indianapolis, Ind.

J. F. KIGHT.

[It is of the greatest importance to make sure of the proper proportion of young vigorous bees in the fall. If the conditions are such that the brood-combs are filled solid with honey in the late summer or early fall, so that the queen has no room to lay, possibly it might be best to extract some of the honey to make room for brood reared because of the stimulative feeding later on. However, we think it would be best to start brood-rearing earlier by stimulative feeding so that, in case there is a good fall flow, the lower part of the central combs will still be occupied by brood, which, hatching out later on, will leave a "winter nest."

This whole question is a disputed one—that is, the question of wintering on solid combs of honey or on combs having empty space in the lower part for a winter nest. We suggest that all those who have the opportunity to do so, should test the two plans this coming winter and report in the spring, said reports for use in our Sept. 1st issue in 1914.

We doubt whether many beekeepers would sanction the plan of extracting from the brood-nest in September.—Ed.]

Comb Honey Cut to Fit into Sections has a "Stuck in" Appearance

I have read with interest the article by Dr. Humper, Oct. 1, p. 674, and your remarks on it. I was surprised that you should consider the plan of cutting frame honey into chunks for the bees to fasten in section bases as something of originality and value. Before now you will probably have heard from many beekeepers who have experimented in this line with more or less success—generally less.

Last spring I had more calls for section honey than I could begin to supply. I had a good many

more shallow frames of orange honey than I needed, so I tried to make the bees fasten my chunk honey into sections. I found the best way to get the comb in the sections was to cut it a very little too large, take a folded section, open the joint, slip it over the chunk of honey, and squeeze the dovetail together again.

The bees certainly fastened in the combs; but the results were not satisfactory. In almost every case the cells next to the wood were cut down to (or nearly to) the midrib, and the adjoining ones rounded off to match, and, of course, emptied. Nor could I get these empty cells drawn out and filled again, though the colony I used was an ideal one for such work—a prime swarm requeened with a ten-day-old queen. The brood-nest was packed with honey and young brood, the bees were finishing their first super, a good flow from orange bloom was on, and a big feeder was under them at night. Five days after giving these stuck-in sections the colony swarmed, and the sections still had the stuck-in look, so I cut out the honey again and put it up as "bulk comb."

Some beemen may make a success of Dr. Humper's method, but my little experience leads me to believe that section honey produced in this way will always have what might be termed a stuck-in appearance, and necessarily so, for the bees must clean out every cell next to the wood in order to do the sticking in, and I am not sure whether they can even stick it without cutting down the walls of the cells somewhat.

As to eliminating swarming, I think I will use the method for making extra-rapid increase next spring.

By the way, I can give a sure method for eliminating tree-climbing for the purpose of capturing a swarm. It is very simple. Let the swarm come out and circle higher and higher until the bees pitch on the uppermost and outermost limb of the only unclimbable tree in the yard; then stand off where you can get a good sight of the cluster, and with a 22 rifle shoot off the queen's wings. You will kill a few of the bees near her, but that will insure her losing her hold and coming to the ground ready to cage. Don't say this is impracticable, for I did it myself last week. True, I was not aiming at the queen, but trying to cut off the limb so the bees would cluster somewhere else, and made a "miss shoot," and cut through the edge of the cluster. I killed about 20 bees, and the queen came down with them with half of both wings shot clear off. She is laying now, and apparently no worse for getting into a shooting-scrape. I would not recommend the plan to a novice; but one with experience in beelore should succeed.

Apopka, Fla., Oct. 27.

HARRY HEWITT.

A. I. Root's Directions for Wintering Bees Given Thirty Years ago

Now that cold winter is about to close in on you in the colder regions, let me repeat the formula that our old friend A. I. Root gave to us (how to winter bees) over 30 years ago. If you, my brother and sister beekeepers, will strictly adhere to the formula I would not be afraid to insure every colony you have to winter without a single loss, providing you have healthy bees and good pure winter stores for them to eat.

Have a double-walled hive, the intervening space filled with oat chaff; a couple of division-boards made of 1/2-inch lumber, doubled-walled, filled with oat chaff, cushioned around the ends and bottom so as to fit the hive tight. Now comes the particular part. Weigh out four combs that will average 15 lbs. of honey to the comb; the best quality of honey possible. Place them in the center of your double-walled hive properly spaced; crowd down your chaff division-boards on each outside. I will add, before you

put in the combs of honey, cut out a circular piece of honey in the middle of each comb about two inches from the top-bar for a winter passage. They will not fill them up during the winter. Now that your combs and division-boards are in, properly spaced off, fill on the outside of the division-boards and inner walls of the hive with oat chaff. Now comes the filling up. Just crowd these four combs with bees until they squeeze out on the alighting-board. Simply have them to fill the entire space. Then lay a small stick, perhaps two, across the frames, about three or four inches apart. Put on your burlap. I will add on my own responsibility three or four newspapers, then your upper story or half-story chaff cushion; then the cover, and you now have a hive of bees that will simply be a sure thing. Father Root gave directions how to make the chaff cushion (burlap): "Cut it so as to have square corners; make it so it will be a little larger than the inside of the hive, so it will be about six inches deep; then fill it with nice oat chaff; then crowd it down tight all around the inside of the upper story or half-story."

I have been handling bees for about thirty years, and in a cold country (until I came here), and I always followed A. I. Root's formula for wintering bees, and yet have the first swarm to lose in wintering.

Well, in this country any old way will do; but they require a whole lot of honey, as they just go to it all winter.

Phoenix, Ariz., Nov. 10.

L. M. BROWN.

Is it Advisable to Take Out Full Combs of Stores and Put in Frames of Foundation in the Fall?

My ten-frame brood-chambers are full of honey. Would it be good policy for me to remove a few frames of honey and replace them with frames of wired foundation? If so, in what part of the hive should I put them—middle, sides, or all on one side?

In the fall, how late should feeding to encourage brood-rearing be continued?

When replacing poor combs by frames of wired foundation in April, should they be put in the center or side of the brood-chamber?

Des Moines, Iowa, Oct. 13.

L. S. EDISON.

[No, sir, 'e. If you have ten-frame brood-chambers full of honey, do not disturb them. We can not see what you would gain by removing a few frames of honey and putting in their place frames of foundation. If they are put in the center of the brood-nest they will be almost worse than nothing unless you feed enough syrup to cause the bees to draw them out, fill, and cap them over. You will then be right back where you started, and in the mean time you will have exhausted the vitality of the bees not a little by the procedure.]

When bees are needing stores, one can feed clear up to and sometimes past the time when frosty nights and freezing weather come on. But it is usually advisable to feed earlier. We have fed after having freezing spells, and have had excellent results in wintering. In our locality we can feed as late as the first of November, and sometimes it is necessary to do it, as an earlier feed will start brood-rearing, causing some of the syrup to be used up.—ED.]

Supplying an Artificial Substitute that will Fully Take the Place of Natural Pollen for Brood-rearing

I am in need of some information regarding supplying bees with pollen, and therefore am imposing on your time as the most direct way of getting it.

In your various experiments have you tried a cooked nitrogenous feed as artificial pollen? If so, would you advise an equal mixture of wheat shorts

or middlings, and cotton-seed meal mixed with honey to make a jellylike mass? Owing to our two dry winters and the freeze last winter, there is a dearth of late pollen-producing plants this fall, and hardly enough pollen in the combs to supply the brood-rearing that usually goes on during the winter. About the same condition prevailed last winter, and the bees built up on orange bloom. For that reason there was no surplus.

Moreno, Cal.

B. W. BROWN.

[You put up a hard question for us to answer. While bees can be fed meal out in open pans at certain seasons of the year, this kind of pollen does not seem to give the results that the natural pollen does from the flowers themselves. We never tried cooking the nitrogenous feed. We have no idea how it would work. We may be up against this proposition in Florida when we move our bees there this winter. Mr. A. B. Marchant, of Apalachicola, thinks he has solved the problem of how to supply the bees with an artificial substitute for pollen in the hives so that the bees will rear brood when natural pollen is not available. Perhaps he will tell us about it. Should you discover any solution of the problem we should be glad to have you let us know through the columns of GLEANINGS.—ED.]

A Further Precaution to Observe when Shaking for Foul Brood

When reading R. F. Holtermann's article on "Shaking Combs of a Diseased Colony," Oct. 15, p. 726, a further method of "minimizing risk" occurred to me. At the time of removing combs not containing brood in preparation for shaking, cage the queen in a cage which can be easily removed from the hive without disturbing the bees. Next day move the hive gently—so gently that the bees are hardly aware that they are being moved, and in its place put the hive prepared with frames and starters. This should be done when the bees are flying freely, and in a short time sufficient bees will have collected to take care of the queen which should now be given them. By evening most of the gatherers will have returned to the old stand, and the young bees left can be rapidly shaken from the combs without the use of any smoke. The second shake can be carried out in the usual way. Of course, if preferred, the queen could be caught early in the morning. By midday the bees, having got over the excitement caused by the manipulation, the hives could be changed, and the young bees shaken in the evening when other colonies had ceased flying for the day. By this method the greater number of old bees would transfer themselves without taking any contaminated honey with them.

B. BLACKBOURN.

Hoo, Minster, Ramsgate, England, Nov. 5.

Please advise what success building up colonies on sweetened water, 1 to 9, would bring. It does not seem to do well here.

W. L. WHITNEY.

Cranbrook, B. C., Can., Sept. 29.

[Sweetened water, or a syrup of only one part sugar to nine parts of water, will do very well for outdoor feeders during warm weather. Such a weak syrup as this, however, must be taken up in a few hours; otherwise it is quite liable to sour. A 1-to-9 syrup can not be fed inside the hive unless the bees can take it up inside of 24 hours or less. Something, however, will depend upon the humidity of the atmosphere as well as the temperature. In your climate we should think it very doubtful if you will be able to use the 1-to-9 syrup. You probably could not use very satisfactorily in the hive any thing less than three parts water to one of sugar.—ED.]

Our Homes

A. I. Root

What hath God wrought!—NUM. 23:23.

OUR OHIO HOME; THE BUNGALOW.

A year ago or more I told you that Mrs. Root was finding it too big a task to take care of our large brick house that was just right to accommodate us two when we were younger, with our family of five children; and I told you, too, that she was begging for a little home—one that would not require so much care and responsibility. Before we started for Florida last fall it was inclosed with the roof on; and the children—Mr. Calvert particularly—looked after the finishing up during the winter. When we came back last April the house was all finished complete, as you see it below. The young folks wrote us that our home was ready for occupancy; but it was one of our happy surprises to find it complete, warmed up with natural gas, hot and cold water (and soft cistern water at that) wherever it was wanted; and last, but not least, a pretty well-stocked pantry. Carrie Bell, our youngest daughter, came in next day and asked how we liked our bungalow and its surroundings. I think the reply that I gave offhand sums it up pretty well. I said, "Why, dear Carrie, we find just showers of blessings everywhere."²²*

Now, after looking at the picture you might care to know something about the inside. There are four moderate-sized rooms on the first floor—a sitting-room, a dining-room, a kitchen, and a bedroom. You might think the bedroom should have been upstairs; but Mrs. Root said she had climbed stairs all her life, and she would like a home so that, after she had passed three-score years and ten, there would not be very much running up and downstairs to do. Besides the four rooms mentioned, there is a pantry and a storeroom in a little wing on

* Will the friends excuse me if I pause right here and speak of something else that may seem a little irrelevant to our subscribers? When Mrs. Root and I formed a partnership we had planned not to have a very large family, if any at all; but "man proposes and God disposes," and I feel like adding, "Blessed be the name of the Lord." Suppose God had not overruled our poor weak judgment and overruled our plans. I shall have to confess that, as the little prattlers came trooping along, we sometimes thought God was imposing a pretty heavy burden; but where would this beautiful home be, with its loving children and grandchildren, had we been permitted to have our own way?

Now let me go a little further. There are several of you, both men and women, whose eyes rest on these pages, who are not married, although of marriageable age. Perhaps you are preparing to live single. My friends, where would I have been at this moment had I listened to selfish plans and selfish impulses? Does not God know best? and has he not with wonderful wisdom fashioned humanity with infinite love and care after all?



Our bungalow cottage that Mrs. Root and I found finished when we reached our Medina home last April.

the back side. Please notice the first floor is but little above the level of the lawn in front, so there is not much climbing up and down to get in. Well, on the back side the basement is also on a level with the garden, for the house is on a little side hill. The basement floor is really above the level of the ground outside, so that if the water should ever get into the cellar it will run out of the outside door. But that is not likely. The cistern is under the pantry, and is partly under ground and partly in the basement. When we have plenty of rain it can be filled up nearly to the main floor. The cistern is planned so that, by unscrewing a four-inch iron pipe, every drop will run out by gravity; and when it overflows the overflow all comes from the bottom, taking up sediment or whatever may have collected from the rains. Without our knowing anything about it, the children had planned an apparatus to take the water out of the cistern, and drive it, either hot or cold, into a bath-room or the kitchen sink. This is done by the force of the city water, the latter being comparatively hard. If I am correct, the apparatus sends up three gallons of soft water by wasting two gallons of the city water.

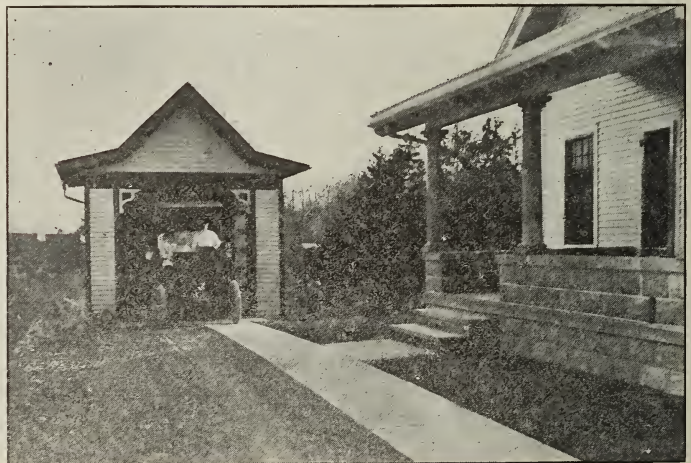
Heretofore we two have never used gas for warming or for cooking; and for quite a time Mrs. Root declared she would rather have her old-fashioned Stewart cook-stove. Her main complaint about the gas was that it would never go out of itself like wood for fuel. In cooking with the old stove she had learned to put in just about enough fuel to do the work; and if she forgot about it, it would go out of its own accord. In vain I pleaded that with gas there was no dusty fuel to litter up the house, nor ashes flying around to be brushed up daily.

Before leaving the house, I wish to say a word more about the stairs. Mrs. Root declares she has worn herself out by climbing awkward and poorly made stairways; therefore I told her to have these stairs down to the basement made just after her own notion; and I think I can describe it without any drawing; and I want to add that, if I had to climb basement stairs many times a day, I entirely agree with her. These

stairs are made of just two long two-inch plank. Plain flat steps are let into these plank so as to come just $8\frac{1}{2}$ inches from the top of one to the top of the next; and the plank for the steps are just ten inches wide; but there are no risers to close up the space between the steps—nothing to bump your toes against when you are in a hurry; and this makes it very much easier to sweep them off or dust them off. These stairways are certainly a very important feature in any home, and I would put the matter of looks entirely secondary. Have the stairs easy to use and easy to dust off and keep clean.

Our main cold cellar where we keep our vegetables and fruit is under the north side, and the house faces north. By opening the windows of this cellar during cool nights or cool days, and shutting it warm nights and warm days, we have been able to get along very well without the bother of a refrigerator; and as the floor of this cold cellar is right on a level with the garden, as I have told you, it is an easy matter to move stuff in and out without any climbing up and down. The front porch needs no description. It is all made of cement, including pillars that support the roof. The roof is slate, as you notice, so we have the very best of drinking-water. The picture of the auto-house just below gives you also a glimpse of the east porch. This porch is also of cement, floor and all. If you have never had a porch with a cement floor you can scarcely imagine what a convenience it is to have a floor that can be swept and scrubbed off with nothing that will soak up or hold the water.

The sidewalks which you see in the pictures are made of cement. They cost, all



Our auto-house for that little electric auto I have been talking to you about.

told, ten cents a square foot, made by a firm that has the machinery for doing the best kind of work.

Now about that automobile-house and the electric automobile. Carrie Bell with her two children occupied the seat while Huber took the picture. The building for the electric auto is, as you see, close by the front door; and I greatly enjoy using the little machine to run errands for any of the six families. To obviate the trouble of turning around, Huber invented and installed a very pretty little turn-table. It takes less than a minute to jump out of the machine, grasp hold of the wheel guards, and run it around so it will be ready to start off again. The apparatus for charging the electric battery was installed by one of the grandchildren, Wynne Boyden (13), the elder son of the daughter we called Blue Eyes toward forty years ago.

If you look between the buildings over down the bank, you will get a faint glimpse of the row of evergreens that cut off the west wind from our garden. You can also get a glimpse of the big sunflower that stands close by the dasheen. It got some of the liquid manure that overflowed the dasheens, and I just cut one single head of seed that weighed 9 lbs.

Now I want to close my long story with something about that electric automobile. It was purchased in Cleveland, second-hand, and cost, as it stands, only \$275. It is a Baker electric Stanhope, and cost, when first made, \$1800. They are now offered for sale in the large cities at these low prices because they are somewhat out of fashion. But what does that matter to Mrs. Root and me? The batteries needed renewing when I bought it, and this will cost about \$75.00; but it ran all summer just as we found it, and will run twelve or fifteen miles very well with one charge. With the replenished batteries it is supposed to go about forty miles with good level roads. One trouble with the electric is that, if you try to run over bad or muddy roads, your current will be rapidly exhausted, and you might find it hard work to get home. The electric is so simple that any woman—in fact, almost any child—might run it. When you want to go you just push a single lever. If you want to go faster, crowd the lever further. With good roads it will make about fifteen miles an hour—a little faster than any horse will go; or you can run it on a slow walk if you wish. I have had a great deal to say about God's gifts; and I want to tell you that, with all the blessings that have come to me in the comparatively long life I have been blessed with, there are few things that I thank God more for than

this electric vehicle. It is always ready. It saves my strength. It is always ready to hustle things, without complaining, when important matters crowd. It never tires. It very seldom needs any kind of repair—at least while I can handle it. Let me go back a little.

When I was about twelve years old, and electricity was my hobby, I went to a blacksmith and bought the largest worn file he had on the premises. I had him heat it up and form it in the shape of a letter U. Then I ground off the file-marks and had it tempered, and then I had a big U magnet. A traveling lecturer magnetized it for me. Then I got a little bit of pure soft iron that would almost reach across the poles of the magnet. This was mounted on a spindle or shaft with a coil of copper wire around it, making an electro magnet. With a home-made galvanic battery, after some hard work for weeks or months experimenting, I had an electric motor much after the fashion of the motors that now drive our electric cars and many of our factories. I wanted this motor of mine both to push and to pull; and I got it, and was surprised at the power it exerted. I have before mentioned going around to the country schoolhouses and giving them talks with my home-made apparatus. I predicted, in a boyish way, what was coming. I said it would be in "three or four years." The only mistake I made was that it took the scientific world and our best mechanics thirty or forty years to bring it about. With this explanation you can readily imagine how fervently I thank God for having been permitted in my old age to run errands and help the young folks with this beautiful (and I should say elegant) machine, even if it is a little old-fashioned piece of mechanism.

Somebody has suggested that my beloved auto is not exactly God's gift, just like the honeybee and the dasheen, but that it is a gift from our men of science and men of skill. But, I ask, who gave to our scientific men their wonderful ability and skill to grasp and fashion the lightning of the heavens, and to make it an obedient servant to do our bidding?

"He that hath ears to hear, let him hear."

I have for a long time been watching for some invention that would do for the hearing what spectacles do for the eyes; and although several manufacturers of apparatus for the deaf have claimed they had it, I fear it has not yet come to hand; but I think, however, it is in sight. I hardly need mention that unfortunate people, who are hard

of hearing, have been humbugged and swindled by quack advertisements. I have tested pretty much every thing I have seen advertised; but the most benefit I ever received was from some sort of ear-trumpet. The things that are pushed *into* the ear may, some of them, be of slight benefit under some circumstances; and some are sold by philanthropic parties who will let you take one on trial, for which they charge you \$1.00, and they *keep* the dollar for just letting you "try" a thing that should not cost more than five or ten cents.

For a year or two I have been noticing advertisements of a sort of telephone for the deaf; but I did not think proper to bother with it until I saw a half-column advertisement in the *Sunday School Times*. This was from the Mears Ear Phone Co., 45 West 34th St., New York. After a little correspondence they have sent me two instruments on trial, both operated by dry batteries. The massage aurasage is for stimulating the nerve of the ear so the natural hearing may be recovered. The directions are, that when one gets a machine he is to walk up to the clock and see how many inches away the ear must be just to catch the sound of the ticking. Then after having used it for some time (twice a day), keep testing the distance. If you can hear the ticking further away, you are making progress. So far, I can not perceive any benefit from the aurasage. The other instrument, the ear phone, certainly makes every thing louder. With this instrument I can hear the ticking of the clock plainly from the further end of a large room. Now, this is certainly encouraging. But the sound of the human voice, although much louder, is unnatural and indistinct, so that so far it does not seem to be of any benefit to *me*. Not only is the ticking of the clock magnified, but every other sound. When Mrs. Root is working with her dishes the clash of the pans and kettles fairly makes me jump. Any thing like the rattle of a tin pan seems to be particularly magnified; and these various sounds make such a din that I can not hear talking as well as I can without an instrument. I may get over this in time, and I am going to make a faithful test.

Now here comes in one of my "wonderful discoveries;" but, like so many of my discoveries, although it is new to me it may be an old thing after all. While experimenting with the ticking of the clock I happened to put my hand up to my ear, as deaf people often do, and I found that, by putting my thumb under my ear and my fore finger back of and over it, and crowding the ear forward (as a horse does when he wants to listen), I could hear the clock

tick plainly clear out in the center of the room. With *both* hands in that position I could hear it tick in any part of the room as well as with the instrument. Now, it would not only be inconvenient but a little ridiculous to think of putting up both hands in that position when I can not catch on to the talk; and I confess, also, that I shrink against publishing my infirmity by lugging an ear-trumpet around wherever I go. I think at the present time I shall get along as I have been doing for a dozen years past—that is, when outside of our home or in the office. In the office I shall use the palm of my hand in the way I have described when I do not hear readily; and my two hands, right and left, I shall take along with me, having them at all times right at "hand." I think this will be much easier and more comfortable, at least to myself, than a dry battery and a receiver, even if the latter is not much larger than a half-dollar.

I have also received circulars from the General Acoustic Co., of New York. Their apparatus costs \$60.00. The ones I have been mentioning cost \$20.00 each, or the two for \$37.50.

Later.—To-day, Nov. 3, just as we are about to start for Florida, I have, by the kind permission of the manufacturers, tested both instruments mentioned above—the \$20.00 one and the \$60.00 one—and I am sorry to say that, although the latter is a much finer instrument, I do not find either one enough help in my case to warrant me in keeping it, and therefore both have been returned. The principal trouble is the clash and clatter of sounds besides the voice that I am wanting to hear. I am assured by both of the firms that in time I would be able to distinguish and would not be troubled by these echoes or clattering, and this may be true. The greatest reason why I can not hear through the telephone is the buzzing and scraping noise. My deafness is a little peculiar. While I hear the voice I do not seem to be able to catch on unless I know pretty well what my informant is talking about. Another thing, I hear ordinary conversation very well without any mechanical help if I can be reasonably near the person who is talking.

I am sorry to make so poor a report, for I have good reason to believe that hundreds are finding these instruments of great benefit.

What a feeling of delight comes over one on returning hot and tired from a long day among the bees, to find GLEANINGS awaiting our arrival! It seems to get better and brighter every issue, while the special numbers are really a valuable addition.

A. H. BOWEN.

High-pressure Gardening

SWEET CLOVER A "NOXIOUS WEED."

Dear Sir:—This statement appeared in the *Geneseo Republic*, Aug. 1, 1913. The paper is printed in Geneseo, Ill.

Colona, Ill., Aug. 1.

C. J. GLENN.

Here is the clipping referred to:

A DANGEROUS PLANT.

The plant *mellilotus*, or sweet clover, with its pretty name and unparalleled vitality, may give mankind the trial of the ages. It probably will prove a scourge worse than war and all other scourges combined, and yet it may give back to the world the nitrogen that our soils are begging for to-day.

In some parts of the world nitrogenous rocks are scattered by the glaciers of the past, and the slow decomposition of these rocks gives a nitrogen supply; but in the great Northwest, where the rocks are covered with many feet of alluvium, the soil is even now in great need of nitrogen food that can come only from plants like sweet clover, red clover, white clover, alfalfa, cow peas, etc.

Mellilotus alba, or white-blossom sweet clover, is the one we are after in this article. There is also the yellow variety (*M. officinalis*), and the common alfalfa (*Medicago sativa*), which are more easily managed and controlled. Sweet clover was first sown broadcast on the roads to feed the bees, and for a time did little harm; but the wagon-wheels have carried it into every road in nearly every State, if not every State of the Union. I have studied it in several States, and have found it close up to the timber line on the Rocky Mountains.

The reason why it has not gone into the fields, and pastures more is because the clover bacteria are not in most of our cultivated fields; but it is surely creeping into the fields and pastures, and will soon make the farmers take notice.

I will stake my reputation on the statement that, if one pint of seed with clover bacteria were sown on a forty-acre timber pasture, and a young man were given a scythe, a hoe, and a spade, and hired for life, he could not exterminate it if he lived sixty years. I have never seen a road cleared of it yet. It gains a little every year, no odds how much it is mown down, as mowing is a positive failure. It is a biennial plant, and will produce seed the second year. If mowed ever so much, the lower branches will seed the ground all over and gain a little ground as the nodules in the soil gradually spread. I can show a multitude of roads and lanes so covered that there is scarcely a wagon-track open; and the worst feature is that nothing else grows when *mellilotus* comes in.

If it gets into the fields and pastures as it now occupies the roads and hedges, the food supply of the domestic animals and the human family will be about shut off. It is fast injuring our roads, for no road-grader was ever made that would kill it out on any road. It is a menace to the traveler, for it entirely hides all gullies and ravines, and teams are often floundered in a hidden trench in crossing the road, as it grows six feet high in any poor soil.

Our domestic animals will eat a little sweet clover if starved to it, but they generally pass it by and hunt for other grasses. They will soon hunt in vain. I can show any one thousands of places where it is gradually taking possession, and it will stay until some genius can invent or devise an exterminator to cope with it successfully. Science must come to the rescue now or it will prove to be the problem of the nineteenth century.

If quick relief does not come, the whole human race will be hopelessly enslaved by this fiend of all fiends, this curse of all curses, this wolf in sheep's clothing, this demon in disguise.—L. R. WITHERELL, Knoxville, Ill.

One reason why I have given place to the above is because it so forcibly illustrates how some people, when they get a going, ride their hobbies to death, trampling under foot good common sense, reason, and every thing else. In the second paragraph our vehement friend *acknowledges* that the much-needed nitrogen can come only through the influence of sweet clover and other legumes; then he straightway deplores the kind of "mission work" that the wagon-wheels of our limestone roads are doing. Then again he honestly owns up the need of the clover bacteria which are "slowly but surely" creeping into the fields. Very likely it will be a slow job to eliminate sweet clover with a scythe, hoe, and spade; but, my dear friend Wetherell, that is not the way we exterminate the weeds from fields in our part of the country. When sweet clover does get into the fields, it is the easiest plant in the world to exterminate by simply plowing it under; and it is the very best legume to enrich poor soils that has ever been discovered. In regard to its being an enemy to good roads, it makes one smile to think of that letter in the book we have just printed on sweet clover, that tells about making the very finest kind of roads with sweet clover and spreading it in sandy places. In closing, our friend admits that domestic animals will eat it if starved to it; but he does not add that, when once they get to liking it, they prefer it to any other clover. Either he has never discovered that fact or this ugly mood prevents him from owning it up. Now, my good friend Wetherell, how does it come that you omit all mention of what our experiment stations are just now deciding about sweet clover? And, finally, is it possible that you do not know any thing about the sweet-clover bulletin that the Department of Agriculture of the United States has just been sending out? Your closing sentence that ends with "this demon in disguise" is a big joke, in view of the fact that the agriculturists of the world are just now deciding it is an angel of mercy to the hard-working farmer instead of being what it has been called, a "noxious weed."

Later.—Since the above was put in type, I noticed the article in that excellent authority, the *Country Gentleman*, which was quoted p. 816, Nov. 15.

I might mention here that all or nearly all the agricultural papers are now falling in line, and giving sweet clover the credit that justly belongs to it.

SWEET CLOVER ADAPTED TO POOR LAND.

Please note the enclosed clipping. It looks as if the despised weed was at last coming to its own. I expect to attend this opening; and if I can find any one who has fed sweet clover, or used it for pasture, I will give you the details.

You wrote me some time ago regarding the time the farmers cut their alfalfa. The *thinking* man cuts his after it blooms, as the cured hay has more substance, and is not what is termed *washy*; in fact, it is impossible to feed cured alfalfa that was cut green (or before blooming) to horses, as it has a very bad effect on their kidneys, and weakens them. It does not seem to affect cattle or hogs. I think that in five years from now half the alfalfa will be allowed to bloom before it is cut.

I look for heavy winter losses on bees this year. Dry weather killed all plant life, and the fall flowers were just nicely started when we had a killing frost. However, it is all for the best, as the majority of those who lose out never give their bees any attention, and that is where half the foul brood comes from.

We have what might be termed an inactive foul-brood law. The county commissioners of the various counties of the State are supposed to appoint an inspector who is to receive two dollars a day and no expenses, and the inspector is to collect his fee from the owner of the bees. How a man can cover a county on a team hire of two dollars a day is a mystery. We expect to take this matter up with the next legislature, and try to get sufficient money to make the law a real law.

Lincoln, Neb., Oct. 10.

H. W. JEFFRIES.

[The following is a part of the extract from the *Nebraska State Journal* referred to:]

The government proclamation, issued when it was originally decided to open the North Platte forest reserve to homesteading did not promise much for the settler in this region. Some Lincoln men who intend to file for claims say, however, that they have no choice between the Fort Niobrara land and the North Platte reserve land. Two-thirds of the North Platte reserve land is not the best for farming; but the adaptation of sweet clover for cattle feed recently demonstrated, has led many to say that they would like to try the North Platte land. This land, they say, will grow an abundance of sweet clover where even alfalfa would not grow.

"WHAT TO DO WITH ALFALFA WHEN YOU GET IT."

The above is the title of a most valuable and interesting article in the *Ohio Farmer* for August 30. In fact, that article alone ought to be worth to almost every farmer the subscription price to the *Ohio Farmer* several times over—that is, 50 cents a year. See the following extract:

I have been a good deal interested and somewhat amused to see the efforts now being made to cause everybody to grow alfalfa upon every farm. Of course I know that everybody can grow it, and I am sure also that everybody would be profited if he would grow it; but also I know full well that many a man will succeed in getting a stand of alfalfa and will fail with it after he has gotten it. There is not a doubt in the world that alfalfa will pay. Take this year of drouth. Suppose a man gets only two tons to the acre—which we exceeded at our first cutting. If the hay is well made, that is equal in feeding value to corn, pound for pound.

What do you think of that? Alfalfa *hay* worth as much as corn, *pound for pound!**

* By the way, if a pound of alfalfa hay is worth as much as a pound of corn, how about alfalfa for chicken feed? You see there would be no harvesting

Now, one important part of the alfalfa business—at least to beekeepers—is the bloom. See the following:

It must always be allowed to attain a sufficient maturity so that the little shoots are starting at the base of the stems. If it is cut before this time it is greatly damaged, and the later crops of hay will fall far short of perfection. Hundreds of fields of alfalfa in Ohio have been plowed up in disgust because men simply cut them too early, and in this way stunted and diseased their plants.

Of course, friend Wing does not say the alfalfa should be permitted to come in bloom before cutting it for hay, but it tends in that direction. I believe it is generally understood that alfalfa is not worth very much to beekeepers unless it is grown for the seed. One of the greatest crops of honey I ever saw in one locality was from the alfalfa fields of York State; but as those fields were a perfect mass of bloom over hill and vale, I presume they were growing it for the seed. I think it will pay not only to read but to study the whole article. I hardly need tell you that there is no better authority on growing alfalfa than W. O. Wing.

I am glad you are hammering away at the bad things in this world. Note the enclosed clipping. We are going to vote on that bill. Dr. Owens-Adair is an elderly woman. I have known her for 25 years, and she always stood for clean things.

Necanicum, Ore.

HERMAN AHLERS.

AUTHOR OF NEW LAW DEFENDS IT; STERILIZATION A BENIGN AND HARMLESS TREATMENT OF UNDESIRABLES.

Sterilization is little understood, and many will vote against the bill, believing it to be a harsh and inhuman measure, when in reality there could be no more humane remedy for the protection of the unborn children and for the purification and perpetuation of our nation. Senator Day said when he voted for my bill: "This bill can hurt no one, therefore I vote yes."

It is shown by statistics that insanity is increasing 3 per cent faster than the population of our country. It was claimed by a physician who addressed a meeting called by the prominent men of science to discuss the social-evil question that 50 per cent of all the boys and men of the United States were afflicted with venereal diseases. Is not that enough to make the people stop and reflect? Where will we stand 100 years from now if these terrible conditions are not changed?

In 1907, when I barely succeeded in getting my

nor hay-making. The chickens will attend to that part of it. Of course the green leaves are not worth as much in weight as dried hay; but in Florida, California, and other places where corn is away up, have we fully demonstrated the value of alfalfa for chickens? If it has to be sowed every year on account of its not standing the wet hot summers in Florida, will it not pay even then? And I notice by the Florida papers that they are succeeding in many places in getting alfalfa to make a stand through the summer as well as through the winter. Just one thing more along this line. In the West, turkeys are grown and fattened by the carload on alfalfa and nothing else. Can anybody tell us more about feeding chickens alfalfa? and can we get at least a fair amount of eggs without any grain whatever? What is to hinder having an alfalfa egg-farm?

bill introduced in the House by four brave young men, it was greeted with coarse laughter and coarser jests. What wonderful changes have come during those few short years! Sterilization has aroused the thinking people to thought and action. They are reaching out in all directions to find methods to check the evils that are threatening our nation. Sterilization stands at the head. It is radical, for it cuts off the contaminating source and the propagating source of the undesirable. It is benign, and it is harmless. The people may veto it, as did Governor Chamberlain in 1909, but they can not kill it, for it will come forth with renewed strength as it did before. In time it will be acknowledged to be the saving factor of this great problem.

DR. OWEN ADAIR.

MOSQUITOES—A SUGGESTION IN REGARD TO FENCING THEM OUT OF OUR HOMES.

Mr. Root:—In reading over your four objectionable features as regards Florida in the winter, I notice the mosquito seems to bother a good deal; and knowing a way that mosquitoes get into your houses that most people overlook I want to tell you. In the day time they retreat down the chimney; and when you light up the house at night, instead of going back out at the top they come inside. A great many will come in this way; and to remedy it just screen the mouth of the chimney.

Memphis, Tenn., Sept. 9.

W. E. DRANE.

Friend D., I presume you have explained exactly how mosquitoes get into our Florida home when Mrs. Root is sure every thing is carefully screened from garret to cellar. We are troubled with them only occasionally in our locality. But several times we have been wondering how some pretty good-sized ones could possibly have crawled in during the night.

FLORIDA AS A PLACE FOR BEEKEEPERS, ETC.

I have been reading a copy of GLEANINGS you sent me some time ago, and have been doing considerable thinking along the line of beekeeping. It seems to me this would be an ideal country for bees. There are but few in the country. Those that are here are doing well with no attention whatever. The best honey-producer we have here in these hills is the partridge pea. Hundreds of acres of this hill land are covered with this pea, which grows to a height of three feet in many places, and produces honey from early in the spring until late in the winter—usually about nine months in the year. The bees do not get the honey from the blossom of the partridge pea. There is a small cup or nodule, near the base of each leaf, from which the honey is gathered. There are also many other wild flowers from which honey could be gathered.

These hill lands, being a red clay loam, produce much better than the flat sandy lands of Florida. Citrus fruits are at home here, and the flavor is much better than that of the fruits grown on the flat lands. The water in these hills is pure freestone. We have no malaria; mosquitoes are not troublesome at any time of the year. The past summer the mercury never went above 93 degrees, and only once that high. In my garden are lima beans which were planted the summer of 1912 still producing beans, and apparently are growing as well as ever. They had no protection whatever last winter.

I will willingly answer any questions beekeepers or others may want to ask regarding this country.

I am not a land agent nor any thing of the kind; but I am a *booster* for this country. My native land is Shenandoah Valley, or Virginia—a good old country; but now I am a "Florida Cracker."

Greer, Fla., Oct. 16.

G. R. COVERSTON.

As the writer of the above is a "booster" for his locality, perhaps we should take it with a little allowance. Although he is located not very far from our Florida home, I think he overestimates the partridge pea. I know we get some honey from it, and it may be much more plentiful in his locality; but bees in Florida, if I am correct, have quite a good many poor seasons for honey. His statements in regard to the temperature are about the same as with us, and I have already mentioned that lima beans as well as much other garden stuff frequently bear the second year, especially if we have rain, and no killing frosts for quite a long period.

HONEY CURED WHEN ALL DOCTORS FAILED.

The last of June a colored girl four years old got hold of a box of potash, and ate some of it. A doctor was called in, and he prescribed for her, but she grew worse all the time. Her parents carried her to Montgomery, 24 miles away. This was the last of July. The doctors there said nothing would do her any good but an operation. Her parents were not able to stand the cost, so they brought the girl back. But she soon got to a point where she could not eat any thing. Then they carried her back to Montgomery, where the doctors performed an operation. She stayed there three weeks without eating any thing. They told her parents they had done all they could for her, and told them to take her home if she were able to get there; but they thought death would be the result, as she had "grown up inside," and nothing could enter the bowels. I was on my way to Montgomery, and met them at Pike Road, Ala., my station. They then told me about the child. I looked at her and was very sorry for her. I had known her parents a long time; so when I returned home I asked if the child was still alive. They said she was. I sent them some of my honey, and sent word to the parents to give the child as much as she wanted. She could not eat it at first, but it tasted good to her. At the third trial they said she did swallow some of the honey, and that was the first thing she had swallowed in three weeks. They say it was a sight to see how she improved at once. After she ate a spoonful or two more she drank some milk, and now she can go from house to house, and is doing well. She has had no medicine since except honey. A doctor stated to me that if she had had honey at first the poison would not have done her any harm.

Mathews, Ala., Sept. 8.

N. S. NORDAN.

The above is interesting because it corroborates what we have heard many times, that milk and honey are nature's remedies. You remember that when the children of Israel were wandering in the wilderness they were repeatedly cheered by the promise that if they would obey the Lord they would enter "a land flowing with milk and honey;" and the above plaintive letter tells us that milk and honey really succeeded after the doctors and surgeons with all their skill had failed.

Temperance

GOD'S KINGDOM COMING.

We notice by the *Cleveland Plain Dealer* of October 24 that the great manufacturers of our land are waking up to the need of getting rid of the saloons that so often crowd close up to places where great numbers of people are employed. I have made three clippings from the article.

Cleveland is to be the center of a national movement for legislation forbidding saloons within certain distances of industrial plants, particularly foundries.

Below is what the chairman of one of the Cleveland committees declared:

The Clevelanders will appoint as members of his committee one man from each State in the United States. Central headquarters and the directing power of the movement will be here.

"Despite all liability laws and 'safety first' efforts, manufacturers continue to let saloons do business next door to their offices.

"A man slips out for a moment or two, and goes back to work.

"No one knows he's half loaded, but may be he'll get hold of a crane, or ladle of molten iron; there's an accident, and not only he but several others are injured.

"It seems to me this question of the saloon ought to be made a national issue, that the saloon ought to be driven away from the manufacturer's door."

And the clipping below tells us what the *Iron Trade Review* has to say in regard to the matter:

When saloons are located within a few feet of a foundry, it is possible for the workmen to slip out from time to time, fill up on beer, and return to work in a short time.

Of course, brains are muddled. The result is not only poor work, but frequently serious accidents.

For years I have wondered why more of our manufacturing establishments did not take greater pains to keep their men away from drink. Perhaps I might say to our readers that of late the city of Cleveland has been instituting safety committees who make it their business to see what can be done in the way of preventing accidents, both near factories and on our streets; and, as I understand it, the above measures are largely the outcome of this "safety" organization.

A KIND WORD FROM WESTERN AUSTRALIA.

I am a teetotaler myself, but used to be a moderate drinker. I was born and brought up in South Australia, in the famous wine-growing districts of Sanunda and Angaston. The majority of the people there drink wines; everybody thinks it is good for one to drink light wines. When I was twenty years of age there was a big rush to the golden West. Rich gold fields had been discovered, people flocked to these places, and eatables went up to enormous prices, so there were big opportunities for agriculturists. Land could be had from the government for almost nothing, so I was tempted to try my luck on the land in West Australia; but it wasn't quite so easy as I first imagined. I didn't have much capital; and as every thing was dear I had to be very economical if I was going to make a success on the land, and had to give up all luxuries. Then I was determined to get on. Intoxicating liquors were also

very dear, so I gave them up; and after being without them for a time I found I could work just as well, and at the same time it was a big saving.

After I had been here three years, being interested in bees I subscribed for *GLEANINGS*, and I may say I was quite delighted with your Home chat. It also gave me more encouragement to stay a teetotaler. I might also mention that I am not a smoker, for this has always appeared to me as being a dirty, filthy habit. I have had a lot of lads working for me at different times, and I have been able to get the majority of them interested in your Home talks. Although they read no other part of *GLEANINGS*, they always look forward to it when it comes, to see what you have to say.

There are great changes taking place in Australia toward banishing the saloons, and there is not nearly as much drunkenness as there used to be.

There is one important thing I have often wondered at, and that is that the progressive Yankee has not given his women votes long before this. I see that they are starting it in some of the States. Tell your friends that it has long passed the experimental stage in Australia, and that there isn't an Australian who thinks that woman shouldn't have votes. In fact, every Australian is proud of it.

I have followed your diet talks up, but differ with you in some respects. I used to suffer from indigestion very badly, but have cured myself by dieting. If it would interest you I will tell you how I did it. I might mention that apples are my main medicine.

E. J. HAESE.

Mount Barker, Western Australia, April 30.

Thanks for your kind words, my good friend; and if you have any thing more to tell us about apples as a diet, please let us have it. Just now I am having my choice of the most beautiful apples produced, and I have said several times that I would not exchange my apple supper at five o'clock every day for the biggest and most elaborate meal that any of our great cities can furnish; and, best of all, my apple supper leaves no bad taste when I go to bed or when I get up. Just now I am feeling happy over my Winesap apples that a good friend sent me. They are of a deep red, some portions being almost black on the outside; and this beautiful tint goes through the skin to the snow-white flesh within. Indeed, I have been told that the Winesap is a seedling of the "famous" Snow apple (Fameuse).

WOMAN SUFFRAGE.

There has been an attempt made by the brewers to persuade people that woman suffrage has but little effect on the wet and dry question. See the following, which I clip from the *Home and State*:

WHERE WOMEN VOTE.

California—Two years ago, 200 dry towns; to-day, 675.

Wyoming—Before woman suffrage, all wet; now, 90 per cent dry.

Utah—In election of 1911, 110 cities went dry, 18 cities went wet; every county but one is dry.